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New England Economic Research Foundati

Review of Regional Economic Research and Planning on New England

U.S. DEPARTMENT OF COMMERCE
Economic Development Administration

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REVIEW OF REGIONAL ECONOMIC RESEARCH AND PLANNING ON NEW ENGLAND

A Survey of Existing Literature with Particular Reference to Research and Action Planning Recommendations

prepared by

The New England Economic Research Foundation
506 Statler Office Building
Boston, Massachusetts

for the

U.S. DEPARTMENT OF COMMERCE
John T. Connor, Secretary

Ross D. Davis, Assistant Secretary
and Director of Economic Development

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FOREWORD

The "Review of Regional Planning and Economic Research on New England" is a working tool prepared under contract by the New England Economic Research Foundation as part of the research and technical assistance program of the Economic Development Administration. This compilation was made to assist the New England Regional Commission in identifying available research on regional economic development in New England.

In addition, this publication may have value for technicians, planners, libraries, and universities in their efforts to gather materials reflecting on problems in their own development regions.

Ross D. Davis

Ross D. Davis
Assistant Secretary and
Director of Economic Development

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Preface

The attempt of pulling together in a meaningful way all that is written and known about New England's complex economic development and planning may at first glance appear presumptuous. Yet this effort had to be made in order to provide a starting point for program development of the New England Regional Action Planning Commission. Some people have expressed their frustration by saying that "New England has been studied to death," and with the volume of research on the region this attitude is understandable.

After surveying this literature, however, one is left with the impression that despite much useful research and analysis, vast gaps in our knowledge of the region remain. One reason is that New England is in flux, and what was discovered five or ten years ago may not hold true now or for the future.

A second reason is that most research on New England was not particularly concerned with comprehensive and systematic regional planning for development, but rather with an understanding of particular problems and with specific solutions. It is therefore not surprising to find a fragmented body of knowledge which cannot be placed readily into a uniform system.

A third reason is that knowledge about economic development in general and the tools available for research and planning have undergone a significant change over the past few years.

Study Procedure Both conceptual issues and time constraints played a role in developing an appropriate procedure for compiling this report. A general notion of what is meant by "regional development" and by "action planning" had to be developed. An attempt was also made to anticipate the nature of the Regional Commission's operations. The working hypothesis was that the Regional Action Planning Commission would be concerned with all public policy and administration as they affect New England's future economic development and in particular with the coordination of all federal, state, and local public investment programs in human as well as in physical resources.

Lead time was short, but the importance of supplying the report early enough for the Commission to use the information during its first phase of program development was also recognized. In order to complete the survey within a period of approximately three months, two study phases were identified: 1) Task force review of literature, and 2) Synthesis of conclusions.

Task force review of literature The subject matter was divided into component parts along traditional lines (i. e., population, resources, manufacturing, transportation, finance.) The choice of this particular division was dictated partly by the availability of specialized talent and partly by the nature of past literature, the concern of this report. Unfortunately there is a risk in such separation, as it may leave the erroneous impression that a region's development consists of the sum of its particular economic activities, rather than on the dynamics of functional interaction. (The second study phase was designed in part to offset this impression).

The task force members were matched with the specific review topic in accordance with their specialized background and professional competence. Individual members were asked to use their own best judgment in interpreting and organizing their subject matter, and to supply the Foundation with a short description of their methodology. (See Appendix, p. M-1). The reasons for giving each member considerable latitude were two-fold:

1) the topics differed both in nature and extent and available material

2) the chances of getting the best results were enhanced by allowing sufficient freedom and flexibility

The decision to proceed in this manner was made after balancing these advantages against the disadvantages of a less uniform product.

Given the limited lead time for completion, most task force members chose to review particularly relevant studies in depth. In some instances all background material could not be made available for review. These omissions are, however, not likely to materially affect the significance of the report.

The experience gained through this exercise suggests the desirability of converting literature review into a continuous activity in order to achieve even greater comprehensiveness and, more important, to update this report by review of new research on New England.

Synthesis of Conclusions The results of the second study phase are presented in Section I of the report. The objectives were to present a brief description of significant aspects of New England's overall development and to offset the particularistic character of the task force reports. Though brief, this section serves as a key to the entire report.

A review board was chosen in order to assist in the preparation of this synthesis. Jointly with the project director, the board developed the basic areas to be covered in the synthesis after reviewing the individual task force reports.

"The Economic Structure of New England" is not a complete synthesis of the New England economy or a critique of the individual task force reports, but rather represents a meaningful framework by looking at the New England economy from a general rather than a topical point of view. Key issues of New England's economic development are related to research and planning projects.

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PART I

Synthesis and Summary

The Economic Structure of New England
A General View of Key Issues in Planning and Research

The Economic Structure of New England
A General View of Key Issues in Planning and Research

Rudolph W. Hardy*

The establishment of a Regional Action Planning Commission represents a unique challenge to New England. This challenge must be based on the premise that New England has certain problems and opportunities for development that can best be handled through public action and planning through the cooperation of the six states with the Federal government.

Upon its establishment, the Commission will undoubtedly seek to assess what is known about the general process of economic development and about planning for development. It will then apply this knowledge to what is known about New England, following the construction of a detailed set of social and economic criteria for making rational public investment decisions.

It is the function of this report to make a beginning for this second task; to find out what is known about this area and to identify significant issues of economic development that warrant special attention for research and action planning.

The purpose of this section of the report is 1) to assess briefly the general nature of the New England economy, 2) to identify key issues which warrant particular attention, and 3) to suggest specific research programs in support of the planning activities.

The Nature of the New England Economy

To describe the New England economy in its great variety and complexity, or to write a synthesis of the region's economic development is not the task of this report. One can, however, highlight the common characteristics of the New England economy. The development of this area is influenced by two contrasting factors: an infrastructure inherited from an older industrial economy and a rapid evolution from older and slower growing industries such as textiles to advanced products and services such as electronics and research.

It is well known that America's industrial revolution started in New England. Towns, factories, and service facilities were constructed to accommodate this earlier type of economic activity.

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* This section of the report was prepared in consultation with a Review Board consisting of the following members: Robert F. Barlow, George H. Borts, Robert W. Eisenmenger, and John R. Meyer.

In the nineteenth century, mill-towns were scattered throughout the area wherever waterpower was available. In the absence of motor transport, a comprehensive railroad network with very extensive branch lines developed to service these communities. Later, toward the end of the nineteenth century and start of the twentieth century, electric generating stations and other public utilities, small by current standards, were built to supply power to widely scattered and independent centers of urban industry. This overhang of an older industrial society still remains, but the economic need for much of the supporting structure has disappeared. Furthermore, much of it is inefficient by today's technological standards.

A later significant stage of American industrial growth and development, characterized by steel manufacturing and automotive assembly lines, bypassed New England. The region was too far from the sources of raw materials such as coal and iron ore, and with the shift of population westward, the region became further removed from the center of both economic production and demand.

At the same time, new and more favorable conditions for the textile industry developed in the Southeastern United States. The older New England plants and their supporting industrial organization became inefficient in the face of a vastly expanded demand and the consequent needs for mass production. Much of the textile industry on which New England had depended moved out. Mills closed and unemployment followed. The region lost much of its earlier comparative advantage which led to trading of manufactured products in exchange for food and raw materials. Left behind, however, was a relatively highly skilled industrial labor force and an abundance of colleges and universities. This combination provided New England with a significant advantage for the latest phase in economic development.

This new phase, often referred to as the "knowledge explosion," is based on science, technology and on innovation, accompanied by a vast expansion of service industries. Acceleration of this trend during World War II gradually led to a shift in the industrial structure of New England in the post-war period.

The geographic distribution of this new industrial thrust differed, however, from the pattern of development established during the first phase of the industrial revolution. As in the rest of the country, much of this new industry found its nucleus in the large metropolitan areas; in New England this meant that Boston, New Haven, Hartford and similar large urban centers were the foci for development. In particular, the new industries based on science and technology clustered around the centers of education and fanned out rapidly beyond the old city boundaries, a development that required a realignment in both private and public services.

In short, the location of new industry was not determined primarily by underemployed manpower. For example, the electronics industry tended toward places vacated by the textile industry only if these locations were close to the new centers; Maynard, Massachusetts is a typical case.

Today, therefore, we find sharp contrasts when we compare the rapidly growing research and service based metropolitan centers with the smaller industrial towns scattered throughout the area--towns often still based on the textile and leather industries. We find a public utility production and distribution system that is in many respects still geared to the needs and the technology of an earlier period. We find a complex and overexpanded railroad system with a great variety of branch lines that are starving for revenue producing freight. Perhaps more important, we find a reservoir of skilled workers with the wrong skills and in the wrong places--all symptoms of incomplete transition.

In summary, New England's principal comparative advantage lies in those labor intensive industries that provide specialized products and services. The problem is to facilitate and expedite the transition from an industrial structure based on textiles, leather and other older and standardized manufactures to the newer, rapidly expanding and world-competitive industries based on new technology and with less product standardization.

In addition, there are the problems of realigning private and public capital investment structures to meet the locational and service needs of the new growth industries.

New England's future will therefore depend on how rapidly it is possible to stimulate its comparative advantages and on how quickly the barriers to such expansion can be removed.

Key Issues of Regional Development in New England

The notion that the inherent strength of the New England economy is based on technologically advanced industries producing new and unstandardized products and that its weakness is an inadequate service structure in support of the new growth industries leads one to the suggestion that tackling certain key issues is likely to be of particular significance to regional planning for New England.

The following issues seem worthy of special attention:

1. An expandable public educational system for the region as a whole should be designed with the aim of achieving higher quality standards and a greater variety for a larger percentage of a growing population. New England's system is generally well developed at the elementary level (with some notable exceptions in Northern New England) and at the upper end of the private educational spectrum.

Nevertheless, significant gaps exist in the middle range of public education. Technical schools, junior colleges, special adult training facilities are inadequate. A build-up of such educational services would facilitate a realignment of the labor force in accordance with the rapidly changing demand for new labor skills.

2. A New England-wide employment service could be created to stimulate geographic and skill mobility for the region. Such an effort, coupled with a new emphasis on more and better education, could further strengthen New England's comparative advantage in certain labor-intensive activities.

3. New England's transportation system should be revitalized so that it can meet current and anticipated demand. Branch rail lines could be pruned, and valuable rights of way converted to other public uses such as roads, parks, or institutions. It might be possible to initiate a land bank of these and other relatively unused lands for future physical planning.

4. A viable passenger transportation system can be designed for the region by combining the various modes of transportation into a well integrated network. In particular, the likely development benefits of intermodal coordination of public carrier service should be fully explored.

5. New England's public utility structure needs modernization in order to lower power and fuel costs. Public policy and public investments might well be directed to the

1) Replacement of outdated power producing facilities

2) Mergers of smaller companies

3) Promotion of inter-fuel competition, particularly gas and electric

4) Stimulation of power imports from Canada

5) Acceleration of power grid integration

The goals should be to lower average power and fuel costs to at least the level prevailing elsewhere in the United States. Since costs are currently higher than in other parts of the country with more rapid expansion, extra measures should be taken to overcome this particular barrier to the region's economic development.

It should be noted that the rate of replacement of new for old and inefficient generating equipment depends to a high degree on the rate of economic growth. In New England one finds not only older equipment because of early industrialization, but also slower income growth than in most other parts of the country.

6. New England's recreational potential is a decided asset to the region's development, particularly in the Northern states and along the entire

seacoast. Planning for multiple recreational and vacation usage particularly along the ocean, lakes, and rivers could augment the value of available natural resources.

The size of public investment in recreational facilities, however, should be weighed carefully against the relative benefits of alternative uses for the same funds, in order to avoid overemphasis of this particular aspect of development.

7. As noted, there are a number of underdeveloped areas and communities scattered throughout New England calling for public attention. Among the more difficult of these problem areas is the fairly substantial district of Southeastern Massachusetts and portions of Rhode Island, embracing such towns as New Bedford, Fall River, and Woonsocket.

This area appears to be in many respects immune to change because of its particular sociological and ethnic structure. It can be characterized by a relatively immobile population (seemingly with good reason) often resistant to modern education. A public program of multiple development assistance could be designed to break down the barriers of isolation and thus facilitate that area's fuller participation in the benefits of New England's development.

Certain areas in Maine and other portions of Northern New England, though less sizeable, call for similar approaches.

Research Program

Singling out key issues of regional development with particular significance to New England is of course based on an interpretation of existing knowledge. The purpose was not to make startling new discoveries, but to relate observed phenomena to knowledge of the development process as it applies to the particular economic history and conditions of New England.

Indeed, it is possible to supply a much longer list of issues that would lend themselves to public action planning. The purpose of selecting key issues was to identify those gaps of knowledge where particularly useful research could be conducted as part of the action planning process.

Research for program planning should, however, be based on simultaneous analysis and evaluation of a wide variety of interrelated factors and here the gaps in knowledge are particularly apparent. Up-to-date analytical and econometric models, together with modern computer technology, can solve a large array of such problems. These tools should be employed within the limits of available funds, and after carefully weighing the likely benefits against those of alternative research uses.

In addition, it should be possible to construct a set of projections for the region for the next 5, 10, and 20 years, assuming the continuation of current trends in public and private capital flows as influenced by regional competitive factors. These projections can then be modified by using alternative assumptions about public policy and investments. Simultaneous to this exercise it should be possible to single out particular areas for research as prerequisites for action planning, following the identification of priorities.

The knowledge gained through past research will no doubt be invaluable for gaining insights to specific problems and as starting points for new research and planning efforts. The notion, however, that public investment and policy can be used in comprehensive and purposeful ways to achieve a region-wide welfare objective has very rarely been the underlying assumption of research on New England. Not surprisingly, the literature on New England and on proposals for change has usually been fragmentary and does not lend itself readily to a general long range regional planning and development program. A rigorous theoretical and analytical framework for the region is usually lacking.

Most of the major studies of the region are composites of separate pieces. An attempt has usually been made to pull together a set of discrete and more or less distinct recommendations appropriate for specific functional components such as transportation, agriculture, manufacturing, population, etc.

A number of the reports on New England deal, however, with policy issues and action recommendations. Typically key problems are identified, and appropriate remedies prescribed. A careful analysis of the anticipated chain of consequences for New England, both direct and indirect, of alternative measures has rarely been attempted. The difficulties of constructing a generalized model of economic development for New England may be insurmountable because of a lack of data and high cost.

A feasibility study to uncover the value limits and cost of constructing economic growth models for New England should, however, receive early attention. Such a model or models might be worthwhile if they could predict the tradeoffs among major regional public investment alternatives, or at least trace secondary or tertiary effects of alternative courses of action.

Once a general framework has been established for overall research and planning, it is possible to undertake within this context special projects that deal with key issues. The following research areas have been selected as particularly relevant to New England's development needs identified earlier:

1. A comprehensive manpower study with sufficient geographical detail as part of the general economic projections referred to earlier could serve as a basis for identifying particular skill and training requirements. A concurrent study could evaluate present facilities and projected expansion plans of educational institutions in light of anticipated demands. Given modern educational standards, cost studies could be undertaken for a comprehensive plan to upgrade educational and retraining facilities so that any gap in the re-

quirements derived from the demand analysis could be filled. Such costs could then be compared with estimated benefits to development.

2. A comprehensive manpower survey would also serve the purpose of designing an appropriate public employment service network. The feasibility and costs of using modern data processing systems could be part of this research.

3. Research should be conducted for establishing criteria necessary to a realignment of the New England rail freight network. At the same time, a regional public passenger transportation system should be designed that would provide an efficient intermodal service to the public by combining rail, air, and bus transportation. Such a study should concern itself particularly with intercity transportation for intermediate distances and with any related aspects of commuter transportation, taking account of currently known technology. Such a study would evaluate the costs and social benefits of alternative systems.

4. A research program should explore regulatory financial, organizational and marketing practices that may present obstacles to equalizing more rapidly New England's average power and fuel costs with those prevailing elsewhere in the United States. Simultaneously, it should be possible to estimate the potential contribution of lower cost power to New England's economic growth. In addition, technical and economic studies should be supported to evaluate the potential benefits of Canadian power imports and the design of a New England-wide power grid. A considerable body of recent information is already available and should facilitate research and planning.

5. A survey could be conducted to assess the distribution among different types of recreational demands in order to project and to plan for an appropriate mix in the supply of outdoor recreational facilities, both public and private.

Alternative demands for recreational uses of water adjacent to land suitable for recreation, such as rivers, lakes and seacoast areas, could receive particular attention.

6. Research on how to combine public programs into a single development approach for Southeastern Massachusetts and Northern Rhode Island should precede a comprehensive development plan for that area. Such research, combined with a later pilot project, would help to develop techniques for coordinating public investment programs throughout the region.

The proposed research areas reflect significant gaps in our knowledge of New England's development and relate particularly to key issues where action planning is likely to produce region wide benefits. They are based upon a selection of problems and a review of the "task force" reports.

The selection presupposes that from an overall view of the general economic structure of New England, certain issues appear more important than others and that these, in effect, suggest a useful set of priorities. The synthesis and summary section of this report was designed to present a generalized, rather than a specific, topical view of the New England economy; thus, it can serve as a frame of reference for an understanding of individual "task force" evaluations on particular topics.

Research never ends, and planning action for development offers a wide scope of choice, particularly in a region as highly developed and complex as New England. It should be recognized, moreover, that research for action planning must be linked closely to an understanding of intergovernmental relations as they affect the region and, in particular, planning for economic development. The Regional Action Planning Commission at present is after all one instrument of public policy among many. Research linked to the process of planning, as well as to public policy and administration, can make a significant contribution.

Action can never wait for perfect knowledge of the consequences, but ignorance can be reduced, and indeed this is what research for planning is all about. Hopefully, singling out a few key issues and research programs, rather than listing all, will make a meaningful contribution to the task that lies ahead for the New England Development Commission.

Selective Reading List

(Annotated List of Major Studies of the
New England Economy Arranged Chronologically)

Only a few studies have been selected for the reading list, and each of them has been included in the specific context of one or more of the task force reports.

It was not possible to set any strict criteria for selecting certain studies and not others. Essentially, the choice reflects the judgment of the author. The works that are listed have the following general characteristics:

1. They contain some significant ideas of synthesis among economic functions.
2. They cover a sufficiently large geographic area or significantly large percentage of New England's economic activity.
3. They develop in a rational way a set of broad recommendations for the purpose of stimulating development.

The studies are arranged chronologically.

Selective Reading List

1. New England Regional Planning Commission, publications for the National Resources Committee; U. S. Government Printing Office, Washington, D. C., 1935-1943.

   See in particular: Regional Development Plan for New England, 1941, and A Decade of Regional Planning in New England, 1943.

   The New England development plan encompasses ten major areas: land use, recreation, water use and control, industry, housing, transportation, education, welfare, defense and administration.

   The entire project constitutes the major prewar regional research on New England. It serves therefore as a useful benchmark with which the postwar studies can be compared.

2. Committee on the New England Economy, The New England Economy, A report for the Council of Economic Advisors transmitted to the President, U. S. Government Printing Office, Washington, D. C., 1951.

   This is the first cooperative, postwar study. It contains a description and evaluation of the historical development of the New England economy, the quality and accessibility of factors of production, the region's balance of payments, major industries, and the impact of stabilization programs, taxation, and defense spending. In a summary at the beginning of the study, a list of 37 policy recommendations are addressed to the federal government, to state and local governments, and to a variety of private groups as well. The study emphasizes the importance of developing the manufacturing base, the need for improved transportation and power systems, and the burden of taxation and tariffs.

3. Harris, Seymour E., The Economics of New England: Case Study of an Older Area, Cambridge, Mass., Harvard University Press, 1952.

   Harris' study closely parallels the work of the Committee of New England, of which he was a member, and even though he refers to his work as a new product, it differs less in coverage and evaluation than in tone. The central concept of his study is that the region is a mature economy and many of the afflictions to which New England is susceptible are functions of old-age. The report in brief is a description and analysis of the adjustments the New England economy has undergone during its aging process.

4. Arthur A. Bright, Jr. and George H. Ellis (editors), The Economic State of New England. Report of the Committee of New England of the National Planning Association, New Haven, Yale University Press, 1954.

This is the most comprehensive study of the New England economy prior to and including 1954. Bright and Ellis directed a research task force to study in detail the major elements comprising the economic state of New England.

5. Public Transportation for New England. A Series of Reports to the New England Governors' Conference by the New England Governors' Committee on Public Transportation, March, 1955 - November, 1957.

   The series deals with national transportation policy and the New England economy, the St. Lawrence Seaway, local public transportation, intercity bus transportation, motor freight transport, air transportation, railroads, water transportation, and highway and rail freight rates.

6. Federal Reserve Bank of Boston, 1959 Annual Report, the New England Economy in 1970, February, 1960, and the accompanying 18 research reports.

   Part I of the report presents a composite pattern of the New England economy. Part II consists of a series of reports which present descriptions and projections in the following topical areas for New England: education, population, labor force, income, consumption expenditures, the manufacturing industries, agriculture, tourism, residential construction, financial institutions, fuel and energy, land use, and state and local finances.

   The projections are generated in part on the basis of the internal characteristics of the region and in part on the basis of national projections.

7. Arthur D. Little, Inc., Projective Economic Studies of New England, U.S. Army Engineer Division, New England Corps of Engineers, 1964.

   This major study of the New England region was designed to estimate the future demand for water in New England to the year 2020 and thus to provide an important part of a total planning program for the development and conservation of water resources in the region. In order to do this, A. D. Little made projections of the major factors affecting the demand for water: population, labor force, employment, output and income in the area.

   The study relied on statistical projections for its estimates rather than on "judgmental methods of forecasting," and the basic premise of the projections was that national trends will dominate economic development throughout the regions of the United States.

8. Eisenmenger, Robert H., "The Dynamics of Economic Growth in New England," Ph.D. dissertation, Harvard University, 1964.

   Eisenmenger discusses the relevance of New England's structural changes to its factor endowments. He examines the paradox of New England's relatively high per capita income and lower than national levels of wages. Specifically, the study indicates how the New England economy has tended to avoid industry with large capital, fuel or transportation inputs, and is becoming more concentrated in labor intensive, high value-added industries.

9. Board of Economic Advisors of Massachusetts, First Annual Economic Report to the Governor, 1964, "Toward a More Flexible Economy."

   This report is a selective survey of the Massachusetts economy, selective in the sense that in order to minimize duplication of effort, the authors did not deal with those economic issues which were already under study by other agencies, e.g., urban development and education.

   The following topics are examined: postwar trends and changes in the Massachusetts economy, manufacturing, the impact of defense expenditures, unions, work stoppages, wage levels, natural resources, primary industries, research and development activities, aid to the poor, and estimated future state revenue.

10. Northeastern Research Foundation, Planning for the Development of Maine, January 1965. The report provides a step-by-step approach to the development of a comprehensive plan for the state of Maine.

11. Connecticut Development Commission, Connecticut Interregional Planning Program, 1961-1964.

    This is a series of technical reports published during the inventory phase of the Connecticut Interregional Planning Program. The topics of the various reports include population, labor force, land use, urban renewal, housing, water, public finance, government, transportation resource industries, manufacturing, and service industries.

12. Vermont Resources Research Center, University of Vermont, 1964.

    This is a series of papers concerning economic development in Vermont. The series covers state and local taxation and finance in Vermont, natural areas and the outdoor recreation industry, land use, substate regions, agriculture, natural resources, and educational facilities.

PART II

Task Force Reports

TASK FORCE REPORT A

A Survey Of Research On The Population, Labor Force, Employment, Income And Education In New England

EVERETT J. BURTT, JR.

SECTION 1 EVALUATION

I. Introduction

The rapidly-expanding literature on New England economic trends has gone through three phases. The first came with the recognition of the decline in the region's textile industry, especially cottons, that began in the middle of the 1920's. In this period which lasted roughly until World War II, several cooperative studies were made, characterized essentially by description of the economy, using data from the U. S. Census, and by qualitative judgments of economic performance.

The second period consisting of the decade after the end of World War II was characterized by a concern for the mass, post-war exodus of textiles from New England and the regional crisis that ensued, relieved only somewhat by the demands of the Korean War. Several important cooperative studies, as well as individual ones that were made during this period, revealed a much greater awareness of the relatedness of regional economic variables and reflected the greater availability of statistical information.

The third period began with the Federal Reserve Bank of Boston's study of 1959, in which projections of the regional economy to 1970 were made. In this period, models of regional development, in which the relationships of key variables are stated theoretically, are tested empirically with quantitative data.

The literature on labor force, employment, and income of the region reviewed below is organized by these periods. A final section examines some of the more specialized topics separately.

II. Pre-World War II Studies

Before World War II, there were two major efforts to examine in a systematic manner the New England economy as a whole. Both studies were essentially descriptive in nature and attempted to put together in an orderly manner existing information largely drawn from the United States Census.

A. The first study was conducted by the United States Department of Commerce, Bureau of Foreign and Domestic Commerce, at the request of, and in cooperation with, the New England Council. The three volume study, under the overall direction of Charles E. Artman, (1, 2, 3)[1] was concerned with the industrial structure of New England and major marketing areas within the region. Although the study was considered "the most comprehensive ...yet undertaken," (1 p. XII), the attention given to human resources, income, and education was remarkably small according to present standards. A review of "The People of New England" summarized basic population characteristics. Consisting of only 18 pages out of a total of 591 pages of text, this part included a short summary of the total population, its density, and urban-rural distribution by the six states, a section on migration, a relatively lengthy review of the extent and distribution of foreign-born, a very brief description of the age, sex, and occupational characteristics of the population, and a final statement on trends. The summaries were based primarily on the 1920 U.S. Decennial Census; national trends were based on Census data going back to 1850.

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[1] Numbers refer to listing of books in the Bibliography.

In the second volume, The Commercial Structure of New England (2) income in the region was analyzed from data of the National Bureau of Economic Research, covering the years 1919 - 1921, a national income estimate for 1926, a county estimate of income in 1926, and 1926 federal income tax returns. In general, these data revealed that income was higher in New England than in the United States and that the region's shares of national interest and dividends payments (10.6 and 14.1 per cent in 1920 respectively) were higher than any other component of income. In the same year, the region had 7.0 per cent of the national population and 8.1 per cent of "total income."

B. In the second major cooperative study of New England, New England's Prospects (4), little attention is given to labor force and income; the report was as oriented towards a geographical analysis of resources and industries. Edward A. Filene's article on "Unemployment in New England" (4, pp. 65-95) however did give an analysis, prepared by Chapin Hoskins, of employment and unemployment by broad industry groups for each state in New England, revised to include 1930 as well as 1920 U.S. Census data. Among the conclusions of the study were that in New England unemployment in 1930 was higher than the national average, that manufacturing employment, especially in textiles and shoes, had been slipping in relationship to national trends, and that the value of output per wage earner was generally less than in industries outside of New England. The latter was explained by the fact that in New England workers were employed primarily in those industries with relatively low income, and by the fact that in each industry average output was below average (4, p. 91).

One other feature of the report was the divergence in point of view between Filene and James Truslow Adams concerning the type of industry best suited to New England. Filene urged the desirability of large-scale production to achieve lower costs so that New England firms could survive. To this end, he argued for the application of research and scientific management. Adams, in the lead article, held that the New England tradition was one of quality, not mass production, and that the relatively important supply of skilled labor in the region should make it possible for the region to continue in that tradition. Artman, in his article on industrial prospects, also supported the Adams' position.

III. Studies In The Post World War II Decade

Several major cooperative studies of New England were initiated after World War II.

A. Leading up to them was a controversy, touched off by the concern over the decline in textile employment, in the Harvard Business Review, begun by Professor Seymour Harris of Harvard (6) and followed by a reply from Charles D. Hyson and Alfred C. Neal of the Federal Reserve Bank of Boston (7). Harris pointed to the lower than national rates of growth of the population and labor force of New England in the context of the region's employment structure (especially the growing tertiary employment) and of the region's relatively declining per capita income.

The Hyson and Neal reply emphasized the changing characteristics of the region's population and its migration patterns, the importance of income and wage levels, and occupational shifts. In general, their conclusions were the following:

a. Although the regional population has been growing less rapidly than the nation as a whole, the previous pattern of net out-migration shifted to net in-migration of 423,000 people during 1940-46. This was interpreted as evidence of growth of economic opportunity in the region.

b. The labor force of New England, had a higher percentage of skilled, professional, and semi-skilled workers than the United States as a whole.

c. Per capita income has remained above the United States, but the relative differential had fallen.

d. Cyclically, the region's income is less sensitive, because (a) non-durable industries are more important relatively (and less cyclically-sensitive), and (b) property income is higher proportion of the total and tends to be more stable.

e. Shifts in the industrial structure of the labor force have been advantageous to personal income: a decline in the percentage in secondary, and an increase in the percentage in tertiary industries. Within manufacturing, the growth of durable would be likely to raise incomes, but decrease cyclical stability.

B. The first cooperative, post-war study was conducted by the Committee on the New England Economy, a group of several economists, who prepared a report for the Council of Economic Advisers in 1951 entitled The New England Economy (8). This was essentially a description of many factors relevant to the region. It included a short review of the region's population trends to 1950, and the age, industrial, and occupational structure of the labor force up to 1940, short surveys of trends in employment of two-digit manufacturing industries up to 1947, and per capita income payments, by regions and states, up to the 1948-49 recession.

The fall in the relative per capita income of New England was attributed to the greater rate of industrialization of other regions, a narrowing of wage differentials, and improvement in agricultural income in other regions since the early 1930's, (9, p. 28). The report also indicated that a net U.S. Treasury drain of funds out of the region had developed, and urged New England businessmen to reconsider their traditional hostility to the investment of federal funds in the region.

One characteristic of the report's approach was the emphasis on the factors that influence a firms' locational decision - wages, capital costs, transportation costs, taxes, and so forth - with a discussion of each separately, and then a discussion of their relevance to specific industries - textiles, shoes, agriculture, and so forth. The disadvantages of this procedure are that it tends to fragment the analysis to local levels of decision-making and to emphasize the hortatory approach to industrial location. The effects of one community's actions on other communities are neglected, and the longer-run economic forces at work are missed.

C. Professor Harris developed his views further in his own book (9) which, although parallel to the report of the Committee of New England of which he was a member, he called a "new product." His organizing concept was that the region was a mature economy, afflicted with many of the problems of old age. Although many aspects of the region are discussed--the proposed iron and steel mill for New England, the effects of the St. Lawrence waterway, and the interregional balance of payments--the main point related to costs as a competitive factor, and especially labor costs. Harris argued that the fall in immigration and the previous drain of labor from rural areas handicapped New England vis-a-vis expanding regions, such as the South, which enjoyed large reservoirs of manpower and, therefore, low wages and low labor costs.

D. The full report of the Committee of New England of the National Planning Association, The Economic State of New England (10), published in 1954, was the most comprehensive, large-scale study of the region yet to appear.

The introduction to the report by George Ellis elaborated the thesis that a decline in manufacturing employment, relative to the total labor force, should not be viewed with alarm, as it was a natural aspect of economic development and consistent with rising per capita incomes. Within manufacturing, a trend towards greater employment in the durable goods industries --especially metal-working and metal-using industries--would not only be accompanied by an increase in wages and income but would tend to diversify the region so that economic dependence upon the fate of one or two industries would be reduced.

The chapters on population, employment, and wages, prepared by William H. Miernyk, elaborated the analysis, already indicated, in a number of ways.

Population and labor force trends through 1950 were reviewed. A 1960 and 1975 population projection made by the Bureau of Census was used only to indicate the likelihood of a continuation of New England's declining share. The educational attainments of the region's population were analyzed and found to be good, but capable of improvement. More and better vocational training was urged. The population was found to have better health care than the nation as a whole. (10, Chapter 7)

The discussion of employment and unemployment analyzed seasonal fluctuations by industry (for the period 1947-1951), cyclical fluctuations by industry (1943-1951), and "chronic or persistent" unemployment in shoe and textile communities where the lack of mobility led to suggestions for government encouragement of out-migration. (10, Chapter 8)

Wages were found to be "somewhat lower" than in other highly industrialized regions in nearly all industries, except agriculture and textiles, but "on balance" they were "fairly close to the national average." Limited data on productivity in a few industries were referred to but not related quantitatively to wages or employment. (See next section below). A brief summary of wage and employment legislation is also presented. (10, Chapter 9)

Although the relationships of wages to productivity and labor costs are pointed out in appraising the competitive position of New England industry, the report presented many of the same objections noted above in Section B. By separate (non-interrelated) studies of each topic, the report emphasized goals without recognizing that one particular goal might be inconsistent with another if inter-regional economic relationships were taken into consideration. For example, the development of durable goods industries may require more skilled labor, but how would the social costs of providing it be met without undue increase in taxes? An evaluation of the relative ability of New England to obtain new industry in comparison with other regions was neglected almost entirely. Whether (hoped for) economic expansion would lead to absorption of income by population growth was unexplored.

E. Prior to the final report a number of staff memoranda were prepared dealing with employment and earnings.

One on chronic unemployment (11) analyzed the relationship between unemployment and the shoe and textile employment by communities in each of the six states and for the region as a whole. Except for New Hampshire, correlations were fairly high.

The inter-industry mobility study of workers (12) examined the post-shutdown employment experience of workers in case studies of two woolen and worsted mills and one shoe factory. Also the labor force of 23 firms in expanding industries was sampled to see the extent of transference of skills of former textile and shoe workers. In general, low mobility ratios were found.

Wages and Supplementary Payments in Selected New England Industries (13) examined differentials of average earnings and fringe benefits by industry between selected local areas in New England in comparison with non-New England communities, while the north-south wage differential in textiles, along with data on labor productivity, were examined in yet another memorandum (14).

Output per Man-Hour in Selected New England Industries (15) reviewed statistics of productivity in shoes, leather, men's dress shirts, electrical equipment, and general industrial equipment.

IV. Projections Of The New England Economy

Beginning with the latter part of the 1950's, there have been two major projections of the regional economy. In addition, projections are available for certain sub-regional areas.

A. The first major projection of the region came in 1959 with the Annual Report of the Federal Reserve Bank of Boston (16) and the accompanying 18 research reports on "The New England Economy in 1970." The objective was to project for the region patterns of population, employment, and income in 1970, assuming the absence of war, depression, or other catastrophes. The Federal Reserve Bank's report was a summary of detailed and complex sets of projections generated in part on the basis of internal characteristics of the regional economy and in part on the basis of national projections.

1. The Annual Report stated that the anticipated growth in population of over one million between 1960 and 1970 would require 421,000 new jobs in order to minimize unemployment and maintain the proper relationship with national trends. In turn, such an increase in jobs would necessitate not only an absolute but a relative rise in manufacturing employment in the region from 33.7 per cent in 1960 to 37.0 per cent of the labor force in 1970. (16 p. 25). This could come about only if there was an average annual net investment in manufacturing of nearly $600 million. Whether such investment would be forthcoming was held to be "critical," especially as such outlays during 1955-59

were found to be falling short of the required rate by about 10 per cent.

2. By the very design of the Federal Reserve Study, basic importance was given to the population and labor force projections of Burtt and Sweetser (17). This report was basic to the entire structure of analysis because it provided the one, fixed set of data to which all else was adjusted. Several limitations of this method were pointed out in the report, the most important of which was that both population and labor force were not truly independent variables but, on the contrary, dependent upon the level and rate of change of economic activity in the region as compared with the rest of the United States (17 pp. 33-34). In the population projection, for example--which was based on the cohort-survival method--estimates of in-or out-migration were based on past regional experience (1940-1955) by age and sex groups, and therefore assumed a continuation of past New England-United States relationships.[1]

The labor force projections required estimates of labor force participation rates to be applied to the estimated 1970 population by age and sex groups. Since no state participation rates were available after 1950, national projections, appropriately modified for state differences, were used. This meant, in essence, that the report assumed that the composition of the types of labor demanded by the industries of New England as well as the level of demand with respect to the national economy were to follow previous trends.

3. The key statement of the "problem of New England" was made by T. Y. Shen in his study of New England Manufacturing Industries in 1970 (19). This study showed the difficulties of reconciling the projections of population and labor force on the one hand with relationships of regional to national employment trends on the other. Underlying this concern was the assumption that only manufacturing activity would provide the exports necessary for the region to pay for necessary imports such as food and fuel. The study claimed that a slowing up of manufacturing in recent years had already diminished personal income, was threatening the regional balance of payments, and was undermining employment opportunities in the future. As new capital investment was sagging below the national average (by industry), there was "the danger of a downward spiral of lowered productivity, lowered wages, out-migration ...a perpetual trade deficit," and an outflow of capital (19 p. 6).

In Part I, the author used national 1970 projections of two-digit industries, and then projected regional employment based on regressions derived from historical data, 1919 to 1956. Later, in Part II, these were modified by evidence showing a change in New England-United States relationships in several industries. (See below, section D. 4). This modified projection implied an overall 19 per cent increase in employment (compared with, 25 per cent

[1] An up-dating of the projection based on 1950-1960 migration patterns is found in (18).

nationally), and a ratio of manufacturing employment to the regional labor force of 37.5 per cent in 1970 (compared to 37.4 per cent in 1950).[1/] (Production worker and manhour projections were also made for 1970).

Although these ratios were held to be consistent with the Burtt-Sweetser labor force population projection, it was necessary to show that labor productivity could rise fast enough so that these New England industries could be competitive with the rest of the nation. In Part III, a projection of labor and capital productivities was made by using data on labor productivity and estimates of capital assets from a sample of Massachusetts firms. Assuming a stable distribution of capital per manhour ratios among firms of the same industry, irrespective of the growth rate of the industry, Shen projected the change in capital intensity from estimated increases in aggregate manhours derived above (19 p. 88). Estimates of average assets per manhour, plus separately estimated replacement capital, gave the capital necessary to make labor productive enough to achieve the desired competitive level of manufacturing employment in 1970. The amount of this investment on an annual basis from 1955 to 1970 would have to be 591.4 million, nearly a third above the level 1955.[2/]

The author was doubtful whether this high rate of investment would still be sufficient. As he pointed out, it would only yield an annual productivity increase of 2.0 per cent, nearly a third below the projected national rate of 2.9 per cent. Furthermore, the increase in wage rates considered necessary to prevent greater labor outflows would have to be 2.5 per cent per year, a rate in excess of the estimated productivity increase.

Among the several limitations of these 1970 projections, the attempt to estimate capital requirements rested upon shaky evidence. Capital asset data are notoriously unreliable, and no appraisal of the sample from which the estimates were made was given. On the important problem of the interrelationships of one industry with another, the lack of evidence of such relationships, derived from the input-output data of 1947 (which in themselves were out of date) proved to be of no help.

Moreover, the assumption in the report that manufacturing must continue to employ the same proportion of the labor force in 1970 as in 1950 is contrary to long-run trends both in the United States and New England. The author seemed to argue that without a strong manufacturing sector the region's exports would decline and that therefore New England could not pay for its imports, forgetting that tertiary industries can earn funds too: education,

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[1/] Specific data varied somewhat from those released in the Annual Report for reasons not always explained.

[2/] See footnote above.

medical services, and vacation services, for example. Finally, the fear that labor intensive industries must be low-wage industries was unjustified. For example, research-oriented electronics firms may have low-capital-labor ratios, but the quality and remuneration of labor is high.

4. The projections of manufacturing employment were said to be modified in light of special analysis for selected industries.[1]

One by Miernyk on the textile industry (21) was based on national trends of consumption and productivity in the broadwoven sector of the industry, and on certain assumptions concerning New England's share of total output. These assumptions were that a disproportionate contraction in woolens and worsted would take place in New England and that there would be less growth in the region in non-cellulosic synthetics than nationally. The estimates of 1970 employment, however, were rather broad, ranging from 106,800 to 53,000, with a middle level of 76,500 considered the "most realistic."

The electronics industry of New England, examined by Rubenstein and Andrews (22) was assumed to gain rapidly in components and military electronics by 1970, but not in consumer electronic products. The differences in the projected growth possibilities for the region depended therefore primarily on assumptions concerning the future of government military outlays. In general, their outlook was highly optimistic for expansion, even under what they called the least favorable assumptions.

For the machinery industry group (SIC #35), Stein and Schupack (23) first investigated trends by 4-digit industries for the period 1949 to 1956. They found that New England had a favorable industrial structure in terms of those specific industries rising most rapidly nationally but that the regional growth was less. Although the study assumed that "local factors" were responsible for the lower rate of growth, the authors did not investigate those factors as such. (Hints of capital constraints were not followed up.) The 1970 projections of employment were made on the basis of trends in approximations of profitability rates of the different industries over the previous period 1949 to 1956.

These independent projections of employment in these industries were not consistent with each other in methodology; and the method by which they were used to make adjustments in the Shen report was not specified. However, the limitations of the entire study will be considered below in section 6.

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[1] In addition to three industry studies reviewed here, there was a projection of the construction industry by John J. Hughes (20).

5. Several other reports in the series deserve brief attention. Estle's analysis of personal and disposable income (24) were derived primarily from the projections of employment made by Shen. Smith's analysis of personal consumption (25) consisted of a breakdown of aggregate expenditures by broad categories of durable and non-durable goods and services related to past trends. Special attention was given to sales projections of retail stores.

The Coughlin review of education (26) was not related specifically to the improvement of the labor force but projected the growth of elementary, secondary, and college enrollments. The fact that New England had a net inflow of students was noted but not related to the balance of payments problem (26 pp. 33-34). This report also neglected the relationship of education facilities to the creation of a professional labor force and the growth of industries oriented to it.

6. There are several limitations to the Federal Reserve projections in addition to those already suggested.

The goal of attempting to provide a specific number of additions of jobs in the region by 1970 is theoretically unsupportable and practically irrelevant. Jobs may be created, or destroyed, by forces exogenous to the region.

In essence, the report urges business men to invest in New England certain sums of money in order to achieve a particular employment goal, but that goal is not assessed in terms of the profitability of the required investment. In fact, if the method of projection used by Stein and Schupack, in which relative capital productivities determined the regional direction of investment, had been applied throughout, any deficit in required capital investment would have to be considered the result of low regional profits and hence could be overcome only through subsidy.

B. One of the most comprehensive studies of the region was prepared by A. D. Little, Inc. for the U. S. Corps of Engineers (27) in connection with its planning program for the development and conservation of water resources. Although linked to the Corps' river basin studies, the report nonetheless attempted to give an internally consistent set of projections of population, employment, and income for the region as a whole, for each state, and for specific sub-state areas over the period from 1960 to 2020.

1. The basic premise of the projections was that national trends will dominate economic development throughout the United States. For this purpose, the national projections of the Economic Task Group of the Ad Hoc Water Resources Council Staff were used without independent examination. Other assumptions made in the study were:

a. that population and labor force growth would be the result of both demographic and economic forces;

b. that the performance of regional base manufacturing industries (i.e. exporters) would depend upon the national growth of such industries;

c. that the growth of non-base manufacturing industries would be linked to the demand for products of basic industries; and

d. that non-manufacturing, non-agricultural industries were dependent on the change in total, regional employment. (The report accepted independent, previously-completed industry projections of agriculture, forestry, lumber and wood products, and paper).

2. The projections of population and labor force were obtained by adjustment by demographic estimates to long-run employment projections. The first step was to use the cohort-survival technique to project the New England population on the basis of the following assumptions:

a. For regional gross reproduction rates, the study took the rate halfway between the national, U.S. Census II and III projections. (These were developed in 1958, adjusted for the 1960 Census).

b. For death rates, the national estimates were held to apply.

c. Net migration was assumed to be zero. This assumption, although adjusted later, was considered most appropriate because data on net migration from 1870 to 1960 indicated a declining trend.

From projections of population, labor force estimates were derived by using national estimates of future participation rates, adjusted to agree with 1960 census New England rates. (The nature of the adjustment is not wholly clear).

The second step was to compare these demographic projections with estimates of future employment. This was done by a regression of New England non-agricultural employment to that of the United States for the period 1932 to 1962. The independent agricultural estimates and a level of unemployment (based on national rates) were added to the projected New England non-agricultural employment for comparison with the demographic projection. As the latter was found to be generally lower, the study used an average of the two to give what was called an "equilibrium" labor force. As the resulting equilibrium labor force was slightly above the demographic projection, the report therefore concluded that some in-migration would be occurring, especially around 1980, and that the labor force participation rates would be somewhat higher than otherwise anticipated.

These results were checked against projections of per capita income and found to be consistent.

3. Employment trends by industry were obtained in the manner indicated above. First, the output of regional base industries in terms of value added were projected in accordance with national trends. These were converted to numbers of workers employed by applying trends in productivity--without adjustment for changes in hours of work--and from this total non-agricultural employment was estimated, using trends established on the basis of a 60-year historical analysis.

In general, the conclusions on employment were that manufacturing would show a continuing absolute growth, but that its share would steadily fall, from 34.1% in 1960 to 23.5% in the year 2020. Expansion in output would be much more significant than the gain of about two-thirds in employment, due to rapid increases in productivity, especially in such industries as chemicals and electrical machinery where a ten-fold rise was projected.

Certain non-manufacturing industries would show a much greater employment growth, especially services (a rise of four and a half times, government and finance-insurance-real estate (each a four-fold rise), and construction (a three-fold increase). By 2020, services alone would have a greater share of total employment (28 per cent) than manufacturing.

These trends were held to be advantageous as the "new tendency" in New England towards professional services and private educational employment makes it possible for the region to gain a competitive advantage nationally; such an advantage, it is held, can continue to increase.

4. Personal income in New England was higher than in the United States because of three factors: higher proportion of property income, a higher labor force participation rate, and a higher proportion of workers in manufacturing industries. The trend in the differential however was seen to decline from 1880 to 1948, when the regional per capita income was about 7 per cent above the national. Since that time the two were seen to diverge, reaching 11 per cent in 1960. The latter trend was expected to continue, but at a slower rate, for a number of reasons: a changing occupational composition away from unskilled to professional jobs; a decline in low wage industries; a rise in higher-wage, more capital intensive industries; continued capital exports; and, "perhaps most important" the region's continuing higher labor force participation rate. It is stated that a small differential in the latter can have a significant effect on per capita income. 1/

1/ This had been brought out earlier in Eisenmenger's study (28). See below, pp. A-18 f.

5. State and sub-state area projections were developed in a manner similar to those of the region, and they were made consistent with the overall regional estimates.

6. In general, the A. D. Little projections seem to be carefully planned and integrated, using data from the longest historical periods possible to establish trends. The interrelationships of the various sectors of the New England economy are recognized and used to achieve internal consistency.

The desire for such consistency, however, required that when differently derived estimates conflicted one or both had to be adjusted. This can lead to questionable results. This is especially true of the labor force projection. In deriving the "equilibrium" labor force, the authors concluded that there would be in-migration and an upward adjustment of participation rates. The latter judgment can be challenged on the grounds that such rates are already higher than national rates and there is no evidence to suggest that the divergence will increase. On the basis of the general assumption of long-run convergence of the economic characteristics of regions, this adjustment is unjustified. Moreover, it becomes a crucial point in the Little report because of its importance in the determination of per capita income. If the estimated participation rate is too high, the upward movement of per capita income is overstated. Further economic repercussions of an overstated participation rate need not be stated here: one change obviously unhinges the entire set of projections.

In many ways, the mechanics of projection for sixty years are simpler than these for a shorter period because problems of readjustments--such as interregional factor movements--are assumed away on the grounds that sufficient time is available for the long-run forces to be worked out. On the other hand, the difficulties of long-range projection are obvious. They cannot predict such shifts in demand, changes in consumer tastes, or the impact of innovations upon inter-industry or inter-regional relationships, which are more likely to occur in the long rather than the short run. The long time-reference periods of the A. D. Little study make it inappropriate for handling shorter-run problems, most of which tend to have a much higher priority on society's agenda.

C. On a sub-regional level, two sets of projections should be noted.

1. One set consisted of population projections to 1970 and to 1980 of the Greater Boston area made by Frank Sweetser (29, 30, 31) and labor force projections to 1970 made by Everett J. Burtt, Jr. (32). Shifts in the employment structure of Greater Boston were reviewed (33) but not projected. The cohort-survival using projected birth and death rates was modified by esti-

mates of migration using most recent experience. Changes in birth rates, of course, had no influence on the size of the population from which the labor force was drawn, except indirectly as it affected the participation rates of young married women.

2. The second group of projections refer to several states. In Connecticut, demographic projections were prepared for the state and sub-areas from 1790 to 2000 (34), but they did not attempt to isolate the migration component from effects of birth and death rates. Labor force characteristics are projected to 2000, and manpower requirements to 1975 (74, 75). For Rhode Island, population projections are available to 1980 (84).

V. Other Regional And Sub-Regional Studies

The references in this part are divided into A. those studies relating national with regional trends, B. special regional analysis of income and wages, and C. selected sector and sub-regional studies.

A. Regional-national relationships.

1. Population, employment and income.[1]

The major study here is Perloff et al (37) which gives a comprehensive historical view of the characteristics of economic growth by regions and states from 1870 to 1957. The study covers population, employment, and income, and presents basic data as well as detailed calculations of shares and shifts in regional relationships. The study asserts that export-base and sector theories are inadequate explanations of regional development. Rather, the behavior of the national economy should be considered as a primary cause of regional changes in employment and income. Regional growth will be influenced by the composition of its industries and by the inter-regional shifts that occur within national industries.[2] Reasons for shifts, according to Perloff, relate to the locational economics of firms, and to the advantages of "input-output access" to resources and markets at regional levels.

With respect to New England (Perloff concluded, among other things) that the peak of population and personal income relative to the nation occurred before 1870, and relative per capita income has been falling slowly towards the national level since 1880 (37, p. 278).

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[1] The University of Pennsylvania study (35, 36) is not reviewed here.

[2] This method of examining the differential growth of regional development goes back to the Daniel Creamer studies of World War II. A more recent statement of this type of analysis is presented by Dunn (38).

2. Income [1]

a. A somewhat different type of analysis relating to income differentials by states over the period 1919-1954 was made by Hanna (40). It revealed that a tendency towards convergence occurred during times of rising national income, but that in times of recession the tendency was one of divergence. This "accordion effect" was the result of the fact that the sensitivity index (the relationship of change in state per capita incomes to national averages) tended to be low for high income states but high for low income states, although the correlation was not too satisfactory. Hanna tried to obtain better explanations of differentials by examining farm-non farm relationships, composition by sources of income, and composition by occupational and industrial earnings and by demographic factors.

b. A more recent study by Graham (41) of regional-national variations in incomes shows that the shift of personal income nationally from North and East to the South and West regions of the United States has been continuing since the 1930's. Since 1948, the shift amounts to $22 billion, or about 5 per cent of 1963 income. The industries in North and East regions did not expand as rapidly as in the South and West, but their industry-mix was more favorable as their major industries were those that have tended to expand most rapidly.

The "regional-mix" of the gain in participation income (due to wages, supplements, and self-employed income) from 1948 to 1962 is measured by the difference between the hypothetical national all-industry rate of growth for a particular area and the national industry growth rates applied to the specific industries of the area. For New England, the favorable net gain to composition was more than overbalanced by the unfavorable "regional share" effect, or the fact that only nine industries grew faster than the national industry, while 24 showed relative losses (see Tables, 41, pp. 26-29). The severe loss in textiles was somewhat offset by an increasing share in military prime contract awards (41, p. 23).

The changes in investment income in New England were less than national ones (increasing by 112 per cent in contrast to 149 per cent for the nation during the period), while the change in transfer payments was a little higher (220 versus 207 per cent).

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[1] Easterlin's study (39) is not reviewed here.

Using data on population and migration, the author shows the convergence of regional per capita income towards the national average, with the coefficient of variation falling from 32 per cent in 1929 to 16 per cent in 1963. In New England, although income growth has been below average, the lag in population has been even greater so that from 1948 to 1963 per capita income has risen from 6 per cent to 13 per cent above the national average.

3. Employment

a. The Fuchs study (42) of the location of manufacturing among regions of the United States, measured primarily in terms of employment and value added, covers the period from 1929 to 1954. For New England, he estimates the loss in employment at one-half million workers as compared with a level based on the United States rate of growth. This was about the same as in the previous 25-year period(1904-1929). New England had a poor industrial structure in that its industries were typically slow-growing ones nationally, and he attributed about two-fifths of the loss to this effect. After adjusting for structure, the comparative employment losses were large especially in Massachusetts and Rhode Island--in fact, the largest of any other states in the nation (42, p. 179). Textile losses reflected the pull of low wages in the south, while New England gains probably reflected a favorable wage situation for those industries where higher skilled labor was required. This statement (42, p. 184) should be contrasted with his general summary statement that wage levels were not shown to be a significant factor influencing the differential rates of growth in manufacturing (42, p. 103).

b. In an analysis of employment for census years, 1940 to 1960, Ashby (43) showed that New England had a favorable industry-mix, but an unfavorable regional share. However, he also pointed out that a region is affected by the fact that as shares change, the industry-mix becomes less favorable. Nationally, there is increasing structural homogeneity among regions. This is shown by falling indexes of industrial specialization (i. e. increased dispersion), and by declining regional-indexes of industrial specialization (see Tables 4 and 5, 43, p. 17).

c. Analysis of growth patterns for New England published by the Department of Commerce this year is not reviewed here (44). Manor's shorter review of employment changes emphasizes occupational groups (45).

d. The inter-relationships of regional and national employment (and value-added) have been described by input-output techniques. (For early estimates see 46, 47). John Hughes (48) used the 1947 Table, revised through 1958, to examine the effect of an arms cut on Massachusetts and on New England employment. The completely revised national table has been presented by Leontieff et al (49) for all states.

Less comprehensive but also indicative of the importance of factors exogenous to employment in a region are the multiplier studies applied to specific areas. Two areas in New England have received special attention (50, 51).

e. The relationships of regions to national economic activity have also been approached from the point of view of the business cycle. One such study was made by Borts (52) who compared the business cycle in 33 states from 1914-1953 and showed that state cyclical behavior depended on industry structure and on growth. The combination of low growth and mild cycles often, but not necessarily, occurs. Where there is retardation in growth, cyclical swings tend to be larger.

Gery's study (53) of cyclical fluctuations in New England from 1947 to 1958 showed that regional declines in employment in each of the three post-war recessions were greater than in the United States. Both durable and non-durable industries revealed greater amplitude. The ranking of the extent of cyclical declines by industry generally followed the ranking of national industries, with the exception of transportation equipment and textiles. After adjusting for trends, most New England industries were still found to be more sensitive than the national ones, but dis-aggregation to three-digit industries was not feasible to test whether the greater sensitivity was one of composition or "real."

In 18 metropolitan areas, two factors were found to minimize cyclical sensitivity: diversification and greater employment in non-durable goods industries.

B. Regional Income and Wages

The paradox of relatively high per capita income and lower than national levels of wages (except primarily for textiles) has been a perennial question. Mulkern (54) reviewed the evidence of the relationship in 1957.

1. A major attempt to examine the problem in detail was made by Eisenmenger (28) in 1963. He asked why, with few natural advantages, can a region like New England prosper? His answer was 1) lower wages, 2) higher labor force participation and substantial property incomes, 3) relatively low rates of out-migration, 4) labor intensive technologies that make best use of the wage cost advantage, and 5) the region's "head start." This consists of a local management ready to adjust, industries with income-elastic demands (e.g. insurance, education), and advantages of agglomeration and special economies.

There is no evidence that the relatively lower wages in New England are showing any tendency towards convergence with national averages. The regional labor force is less concentrated in unskilled and service occupations, but wages among higher skilled occupations are probably even lower than the national average. Despite lower averages and unemployment, the fact that out-migration has typically been low is attributed to the fact that the population is older and to non-economic factors.

The principal response to this stability of low relative wages has been a rapid trend towards labor intensive manufacturing in the post World War II period.

2. Whether wages have in fact been stabilized at a lower level than elsewhere has been investigated by others. Scott Pardee (55) held that inter-city wage differentials between New England and the rest of the country were relatively stable. This agreed with earlier studies (56, 57). In recent years there has been an up-dating of this material by the U. S. Bureau of Labor Statistics (see 58, 59). Martin Segal (60), following Bloch's study (57) in which New England was not dis-aggregated from the Northeast, found some small trend toward regional wage convergence.

More recently, evidence of a definite upward movement of New England's wages towards the national level has been presented by the Federal Reserve Bank of Boston (61). Wonnacott (62) concludes that high wages and high wage industries tend to go together.

C. Selected Shorter Studies

1. Employment

Summaries of New England employment trends have been presented for the World War II experience (63) and for the early post-war period (64, 65, 66). The New England regional office of the U. S. Bureau of Labor Statistics has an annual summary of various trends (67). A number of historical employment analyses have been made by States, a few of which are listed here (68, 69, 70, 71, 72, 73). Labor force and employment projections have recently been prepared for Connecticut (74, 75).

2. Education and Training

From the regional point of view, Doody has examined the financial aspects of higher education (76, 77).

On vocational training in New England, there have been a series of five reports in the New England Business Review (78, 79, 80, 81, 82). These studies indicate the substantial need for worker training and retraining. Based in part on worker interviews, they point to the success of programs to date, the limitations of programs where workers are older and their basic education minimal. Estimates of demand and supply of skilled workers are also given (81).

In addition, many other studies relate to problems of job training in specific labor markets. Only one of these, the Boston study (83), is listed here.

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TASK FORCE REPORT B

A Survey Of Research On The Location And Structure Of Manufacturing In New England

ROGER C. VAN TASSEL

SECTION 1 EVALUATION

I. Introduction

This report is presented in three sections: a "general" bibliography of literature concerned with the location and structure of manufacturing in New England; an annotated bibliography outlining in some detail the major findings, evaluations, and recommendations of the more relevant studies; and a summary statement.

II. What Is Available

There is adequate information on what has happened to New England manufacturing over the years. The changes in location of manufacturing and the changes in the composition of manufacturing have been carefully traced, though not always in sufficient detail.

Good evaluations of the causes of the slower growth in New England and the changes in structure are available. With some variations of emphasis there is a high level of agreement on the explanation of the causes of what has happened. However, predictions are far less consistent. Some fairly sharp differences exist over the most important factors--favorable and unfavorable --for future growth, the identification of the major components in the region's economic base, and appropriate policy action. It is agreed that it is desirable to expand manufacturing employment; but there is less agreement over how necessary (or likely) this expansion is to future regional growth.

III. Consistency Of Findings And Recommendations

1. There is agreement that manufacturing, while highly urbanized, has relocated in New England. Concentrations are less in the largest cities; and--with the exception of a few, low wage industries, primarily--have been moving from north to south. These moves to decentralize are explained by the usual forces decaying central cities and the north-south move by competitive pressures and different relative factor prices (including transport and fuel) that exist within New England.

2. Most evaluations of the slower growth in New England assign blame to both regional competition and to the composition of the manufacturing sector. One industry, the heavily eroded textile industry, carried a large part of the blame on both counts; but no longer is nearly so important in affecting New England's structure. Fuchs and Creamer rely on both elements in explaining New England's growth record. Borts and Stein attach somewhat more importance to regional competitive forces.

3. Projections differ considerably. Inasmuch as total manufacturing employment and total population are related to base employment and income it is not surprising that methods using different definitions of the "economic base" should come up with different projections of employment. However, there are also considerable variations in projections for individual base industries even when the same national projections are used. Extrapolation of the previous record, disaggregation of national projections assigned according to the existing percentage of an industry in a region, or evaluation of the competitive future of a region give divergent results.

4. Policy recommendations are consistent at the level of removing impediments to efficiency and growth. Where an existing policy violates accepted criteria for national and regional economic efficiency (tariffs on imports into NE) there is general agreement (though some question of how willing New England should be for a general policy of deprotection.) There is less agreement over the selection of Federal policies that can be expected to help a region to be self-sustaining. What type of public investment will work? Are there Federal investments that benefit the region without violating the principle of maximizing production for the nation as a whole? Should depressed areas be aided by moving jobs or people?

IV. Gaps

1. Many of the studies are old. The report by the Council of Economic Advisers was presented in 1951. Some of its recommendations are still relevant; others are not. Not all of the problems are the same. The structure of the economy has changed and an updating and rethinking of this report might be a type of endeavor appropriate for the Regional Economic Development Commission.

2. Several studies evaluate the causes of locational and structural changes. The New England economy seems to have made the correct adjustments--given its situation--we should have expected according to economic theory. But it has not adjusted in a laisserfaire world. Little is said--or perhaps known--about the role policy actions have played in aiding or hindering these changes. (Bolton's examination of defense spending in New England (perhaps not entirely market allocated) shows how important discretionary Federal spending can be to the region.

3. The composition of the economic base is changing. Bell's study of the Massachusetts experience points to a relatively simple technique that could be used to determine changes in the export sector in other New England states.

V. Conclusions

Reading the pre-1955 studies and those based on post 1960 data gives a definite impression of gain. Not everything is better; freight transportation is perhaps even worse (though the region is increasingly "adjusted" to this fact); we are, especially in a few areas, heavily dependent upon defense spending. But, the favorable signs predominate.

1. The textile decline is largely "worked off."

2. Manufacturing's decline relative to other regions seems to be arrested if not actually reversed.

3. Important as base manufacturing is to the region, at least two influences seem to permit a higher rate of growth and larger level employment than might be expected in a region traditionally so heavily concentrated in manufacturing. First, New England already benefits from non-manufacturing exports. In education, medicine, and research, we appear to have a comparative advantage in services having high income elasticity of demand. Second, New England continues to enjoy a relatively large property income. This income helps meet New England's balance of payments and helps sustain the growth and employment in service industries within the region.

4. Finally, changes in technology and in industry organization indicate that in the future New England will benefit from an improvement in the relative cost of power.

SECTION 2 BIBLIOGRAPHY

Part I of the bibliography contains a brief digest of the major arguments and an indication of the types of information contained in the most useful of the materials listed in part II of the Bibliography.

Part II of the Bibliography is a listing of the most relevant materials pertaining to the location and structure of manufacturing in New England. The materials listed are placed in four major classifications: (A) Regional studies of the New England economy or of manufacturing on a region-wide basis; (B) Studies of the manufacturing in individual New England states; (C) Studies of specific industries on a New England wide basis; and (D) Theoretical or policy statements having special reference to New England manufacturing and the work of the Regional Action Planning Commission. Several of the studies could be placed in more than one category as is indicated in part I of the Bibliography. Emphasis is placed on the more recent studies. The New England economy -- specifically including manufacturing -- has undergone sufficient adjustment that most material developed prior to the middle 1950's is of relatively little direct use.

I. Annotated Bibliography

A. Books, Articles, and Monographs Primarily Concerned With a General Evaluation of the Changing Location Or Composition of Manufacturing in New England

1. Daniel Cremer, Changing Location of Manufacturing Employment (3)

Cremer's study is one of the more recent (1963) evaluations of changes in the location of manufacturing employment. By 1961 "the principal cities had a somewhat smaller share of the declining regional total in each of the two bench marks following 1947." (3, p. 54). In New England manufacturing employment declined absolutely in cities, remained constant in satellite cities and grew in the peripheries.

In the years prior to 1958, New England had increased its total manufacturing employment but at a slower rate than the U. S. From 1958-1961, New England actually increased its share of manufacturing employment, largely by the expansion in areas outside the central cities. Cremer's monograph carries a strong implication that New England's declining share of manufacturing may now be reversed.

2. V. R. Fuchs Changes in the Location of Manufacturing in the U. S. Since 1929 (7).

Fuchs presents a detailed picture of changes in the national distribution of manufacturing from 1929 to 1954. His monograph does more than record state by state changes in manufacturing. Fuchs evaluates the importance of a region's structure (industrial mix) and competitive status in explaining the absolute and comparative changes in manufacturing. Favorable structure means a concentration in those manufacturing industries growing more rapidly than average.

Among the major findings pertaining to the New England experience are the following: (1) From 1929 to 1954 all New England states except Maine showed a decline in their relative share of "national" manufacturing. (7, p. 74) (2) A major part of New England's comparative loss in manufacturing was due to textiles. Textile employment declines were a major factor in both New England's unfavorable structure (specialization in declining or slow growing industries) and in New England's competitive loss to other regions. Only Connecticut has a favorable "structure." (7, p. 20) (3) Of the loss of textile employment (1929-54) 20% is explained by the relatively slow growth of the industry and 80% by a loss to competing regions. (7, p. 20) (4) Measures of mobility within (and between) regions are greatly affected by the detail of the classification. On a two digit basis an industry may show no change where a four digit breakdown would reveal considerable shifting. (7, p. 81) (5) Interstate differentials in the growth of manufacturing were greater when measured by value than by employment. (7, p. 83) (6) Fuchs considers the decline of immigration to New England to be a significant factor in explaining the decline of the region's growth. Borts and Stein make the same argument as is noted later. Not only has New England lost its waves of immigrants but it gets few from intra-U.S. migration. (7, p. 20) (7) The shift from coal to oil weakened the competitive status of the northeast including New England.

Fuchs' study is important in pointing out changes and hinting at some of the more significant causes.

3. Jean Gottmann, Megalopolis (10).

In chapter 9, "Manufacturing in Megalopolis," Gottmann has several observations relevant to the changed mix and location of manufacturing in New England.

In 1954 total manufacturing employment in New England reached the highest figure recorded in any census even though New England manufacturing employment declined as a percentage of national manufacturing employment.

Within New England, manufacturing employment has shifted greatly: Manufacturing employment is now (1954) and continues to be relatively more important to toatal employment in the smaller cities than the large central cities. (The central city has more diversity in its economic base). The central cities' relative share of New England manufacturing has declined, the share of satellite cities has remained constant, and the share of the smaller cities has increased. Within New England and within the whole northeast, the relative shift of manufacturing has been to the south.

The number of large manufacturing establishments--employment of 1000 or more--has declined in New England. This trend may be partly explained by the shift in New England toward "specialization in the finishing stages of manufacturing and in the making of more complicated and delicate products." (10, p. 466) Table 19 (10, pp. 470-71) shows shifts in employment and value added for the period 1947-1954.

The growing decentralization of manufacturing and the shift to "complex" products discussed by Gottmann as well as by Fuchs have both affected and been affected by the New England transportation situation.

4. National Planning Association (17, 18)

Two of the NPA's Projection Series are of particular significance.

(1) "Metropolitan Area Industry, Employment, and Population Estimates: Part I, 1950, 1957, 1960, 1962." Dated Dec. 1964. (18)

This monograph presents data on the absolute and relative size of manufacturing employment in metropolitan regions of the U.S. In New England, manufacturing accounts for a larger share of employment than it does nationally, and a relatively larger share of manufacturing employment is concentrated in metropolitan areas. All New England states, except Vermont, exceed the national ratio of manufacturing to total employment.

When comparisons of New England manufacturing employment in 1950 are made with 1962 data, a slight overall decline (8000 jobs) is indicated against a U.S. increase. Within New England there is considerable variation, the extremes represented by a 28.6% loss in Rhode Island and 26.9% loss in Massachusetts, and a gain of 41.8% in Connecticut.

When data for 1960 and 1962 are compared on the same basis, the New England total shows a gain of 23,000. All states (except Massachusetts with a loss of 1.7%) show a gain. Connecticut shows a gain of 17.4%.

This evidence squares with the judgment of Cremer (3) that New England seems to have reversed, temporarily or not, by 1961 a lengthy period of decline in manufacturing employment.

(2) "State Population, National Migration, Labor Force, and Industrial Employment to 1965" Report #651, March 1965(17).

This monograph projects population and manufacturing employment on a state-by-state basis. Manufacturing employment is projected from 1962 to 1975 for state totals and broken down by SIC two digit codes.

The method used is to take national projections of manufacturing employment and allot shares to New England industry on the basis of the size of each New England industry relative to the appropriate national industry. This method contains several important limitations. It ignores changes in a region's structure (shifts of 2 digit industry class into or out of a region) and hides shifts within the broad two digit classifications. If either of these are important changes--or if the national projections are not quite accurate--the usefulness of these projections for predicting manufacturing employment and economic growth are correspondingly reduced.

5. Arthur D. Little, Co., Projective Economic Studies of New England (14)

This major undertaking by the Arthur D. Little Co. for the Corps of Engineers was completed in October 1964. It includes a major compilation of data on the New England economy. It is not however merely a descriptive study. The purpose of the study was to furnish guides to the future demand for water in New England to the year 2020. To do this, ADL made projections of the population and industrial development in New England.

The basic method used was outlined in (14, pp. 16-19). The emphasis was placed on statistical projections rather than on "judgmental methods of forecasting." This approach is explained as follows: "The manner in which a region grows relative to the nation depends, of course, on its internal make-up, that is, on its resource endowment, the skills and enterprise of its labor force, the size of its internal market (as determined by income and population), and other factors. These regional characteristics are firmly rooted in history. They are the result of long-established interactions between social and economic forces and are not subject to rapid change. In fact, the remarkable ability, or, more precisely, the very gradual change over time in certain national-regional relationships (e. g., New England's share of the national population, personal income or employment) argues in favor of an extension of these trend relationships." (14, p. 17).

The next step of the ADL study was to relate base employment to non-base manufacturing and non-manufacturing. The base employment estimates were made according to two digit SIC codes except ADL corrected for a dissimilar New England composition in those industries having a structure radically different from the national grouping. (14, pp. 52-64). This correction would overcome the problems from different national growth rates in that part of the SIC two digit industry concentrated in New England.

This study is a major source of information. It is a projection and not a forecast, even though it may be used as a forecast for a variety of important policy decisions. There are several serious questions that must be considered in utilizing these projections:

First, any long range prediction is difficult. Relying on an essentially constant manufacturing composition may be satisfactory for a short look into the future, but not for 60 years. The New England economy has--and will continue to be modified by inter-regional competition. A longer range evaluation of the region's growth ought to consider more the gradual influence upon the changing composition and rate of growth of the region's economy.

Second, only manufacturing is counted as a part of the New England economic base. It may be correct to link non-base manufacturing and non-manufacturing to the base; but all important parts of the base ought to be included. New England is increasingly receiving "base" income from non-manufacturing industries. If these sources of export earnings continue to develop, a projection of regional growth on manufacturing base alone could be severely understated.

6. Federal Reserve Bank of Boston (25)

The Federal Reserve Bank of Boston published eighteen Research Reports in 1950 giving projections for various sectors of the New England economy in 1970. These studies were made separately for a series of important industries. Several of them are relevant to an evaluation of changes in manufacturing in New England.

Report #1; T. Y. Shen, "New England Manufacturing Industries in 1970" (25)

Shen projected an increase in manufacturing employment in New England of 19% from 1957 to 1970 compared with a 25% increase nationally. He used a two digit industrial classification in projecting industrial employment. This is a declining relative share of manufacturing and does not agree with some of the early indications, such as cited in Cremer (3).

Shen noted a decline in capital expenditure in manufacturing in a region where manufacturing is important and was pessimistic about the effect this decline might have on manufacturing employment. This view contrasts with Eisenmenger (4) (discussed below) who regards the decline in capital expenditures as being, at least in part, an adjustment toward labor intensive industry appropriate to New England's relative factor prices.

Report #4; E. Estle, "The Electronics Industry in New England to 1970" (25).

A major customer for the electronics industry was (and is) the defense establishment. Defense purchases are regarded as unstable and certainly difficult to forecast from economic indicators. As a result three projections were made on different assumptions of defense expenditures. They gave a range of employment increases from 97,500 in 1957 to a "low" of 146,900 and a "high" of 157,800 in 1970.

This monograph includes several comments on why the electronics industry is appropriate for New England. It is not largely a consumer's good industry. The high value added of specialized assemblies can overcome regional transportation and other disadvantages and utilize the region's locational assets.

Report #11; Jerome L. Stein and Mark B. Shupack, "Forecast of New England's Machinery Industry in 1970." (25)

This report contains a good statement of the projection method used, especially a discussion of the forecasting limitations of techniques that ignore the impact of regional competition upon changes in the structure and relative growth rate of a regional economy.

This forecast relates growth in the machinery industry to national growth in the industry and variations in the rate of return among regions. The machinery industry is broken down into four digit SIC codes and different rates of growth are predicted. The New England machinery industry as a whole is expected to grow at approximately the same rate as for the U. S. and is expected to employ 265,000 in New England by 1970.

Report #14; Marguerite I. Coughlin, "Outlook for New England's Shoe Industry to 1970." (25)

New England is expected to retain its approximate one-third share of national shoe production. Massachusetts is the largest shoe exporting state (17% of the national total) but is declining relative to Maine as the shoe industry continues a northward shift.

Changes in production techniques will result in a decline in employment relative to output.

Report #16; William H. Miernyk, "New England Textile Employment in 1970." (25)

This monograph is a continuation of Miernyk's study of the textile industry. In his "Inter-Industry Labor Mobility," he studied the mobility of textile workers, the duration of unemployment, and obstacles in attaining satisfactory new employment.

In Report #16, Miernyk notes that in the decade from 1947 to 1957 employment in New England's woolen industry began to decline sharply as had occured previously in cottons. Employment fell from 288,500 in 1947 to 144,100 in 1951. The decline in employment is attributed to three major forces: foreign competition, southern competition, and an increase in manhour productivity.

Separate projections are made for employment in each New England state. Textile employment is expected to decline most in Connecticut and least in Maine.

Summary: The Federal Reserve projections (25) contrast sharply with those of the Arthur D. Little Study (14) completed roughly five years later. The Federal Reserve estimates, like that of ADL, are based on optimistic "national" assumptions with the Federal Reserve projections "refined by regional studies." (25), p. 14)

CONTRAST IN 1970 PROJECTED
EMPLOYMENT (in 000's)

Industry	Federal Reserve(25)		Arthur D. Little(14)	
	1957	1970	1960	1970
Textiles	138.2	100.0	125.4	86.6
Paper	69.2	83.7	72.7	76.1
Chemicals	30.8	35.8	34.6	35.3
Rubber	44.8	55.8	61.6	70.3
Leather	110.8	118.0	104.5	93.1
Primary Metals	57.3	52.0	55.1	54.9
Non-Electrical Machinery	189.3	234.2	162.1	199.0
Electrical Machinery	130.8	247.4	167.4	216.0
Transportation Equip.	113.4	124.6	119.2	120.0

There may be some discrepancy in the definition of the categories (rubber, for example) but the variations in the forecasts are considerable. In most industries the estimates by the Federal Reserve are the most optimistic.

7. Robert H. Eisenmenger, The Dynamics of Economic Growth in New England (4)

Robert Eisenmenger, Director of Economic Research at the Federal Reserve Bank of Boston, has carefully examined the varied strengths and weaknesses of the New England economy. His dissertation does more than chronicle the changes in the New England economic structure. It discusses how these changes have been and are appropriate to New England's relative factor endowments and geographic status.

The New England economy has adjusted away from industry with large capital, fuel, or transportation inputs and is becoming more concentrated in labor intensive, high value added industries. Concentration in labor intensive industry is perfectly compatible with a high wage area given the high skill levels required by these industries. Non-manufacturing elements in the economic base seem especially favorable both because of New England's comparative advantage and also the high income elasticity of demand for the goods and services produced.

This study shows how a region can--in an open society--adjust its structure to maintain a high income level. While the role of public policy is not greatly emphasized (and may be hard to evaluate), the thesis contains some obvious implications for transportation, educational investment, and trade policy.

B. "Older" General Evaluations And Policy Statements.

1. Council of Economic Advisers. "The New England Economy" July 1951 (2).

This monograph is in many ways a forerunner of the type of approach that may be usable by the Regional Action Planning Commission and the Economic Development Administration.

Much of the material is now more than fifteen years old. The New England economy has undergone considerable change in that period. The monograph contains an evaluation of: the historical development of the New England economy, the impact of stabilization programs, taxation, defense spending, the factors of production, the region's balance of payments, and important industries. In addition, in a summary at the beginning of the monograph, a list of 37 policy recommendations are addressed to the federal government, to state and local governments, and to a variety of private groups as well. Some recommendations now seem dated; others are still relevant. The concern then expressed with the importance of developing the manufacturing base, and the need for an improved transportation and power situation, the burden of taxation, and tariffs, are still relevant. What is now needed is an updating of the evidence and an effort to translate general recommendations into fairly specific policies.

The 1952 study by Seymour Harris, "Economics of New England" (11) closely parallels the C.E.A. report of 1961. The Harris statement differs less in coverage and evaluation than in tone. Perhaps reflecting a single author, the remarks explaining weakness and action recommendations are more pointed.

2. Arthur A. Bright, Jr. and George H. Ellis; "The Economic State of New England" (1).

This is an encyclopedic report (721 pages) on the New England economy. Bright and Ellis directed a group of specialists responsible for a detailed evaluation of the major elements waking up the economic structure of New England. Though now somewhat dated, it remains an excellent source of information.

While it presents much detail about the development of New England prior to 1954, it offers relatively little beyond preceding studies in regard to an evaluation of the relative strengths of industries, the probable future development, or the role of policy in affecting regional development.

C. Studies of Individual States

There is a very large number of "state" reports describing, predicting, and wishing in reference to manufacturing and economic development in general. Relatively few can be expected to be of much assistance to the Regional Action Planning Commission. Several of the better reports are noted below.

1. In Massachusetts, New Hampshire, and Vermont (and perhaps the other three states as well) the state departments (divisions) of Employment Security released in 1964 or 1965 similar reports describing the changes in population, work force, manufacturing employment. Breakdowns are made for at least some two digit SIC codes, and with intra-state regional totals as well.

These monographs--within the limits of the two digit SIC codes--show changes in the structure of employment and show changes in the distribution of manufacturing. They are not "analytical" or policy oriented.

Titles: 1) "Economic Change in Each New Hampshire County 1957-1965," May 1965. (36)

2) "Employment and Unemployment in Massachusetts; A Work Force Report, 1950-1964." 1965 (34)

3) "Ten-Year Summary of Covered Employment and Wages by County and Industry, 1954-1963." 1964 (40)

A similar study of an earlier period was done for Massachusetts, "Non-Agricultural Employment 1939-1953, Manufacturing Hours and Earnings 1950-1953."

2. Board of Economic Advisers (Mass.). "Toward a More Flexible Economy." Dec. 22, 1964. (32)

This report has a valuable compilation of information about the Massachusetts economy. It contains policy recommendations for improving the health of the Massachusetts economy that are largely compatible with the welfare of the New England region as a whole.

The report notes a continued decline in the absolute number of manufacturing jobs in Massachusetts and a per capita income rising more rapidly than total employment. Massachusetts manufacturing employment declined from 722,000 to 553,000 (1946-1963); a decline of 8% while for the U.S., manufacturing employment grew 16%. Durables as is noted elsewhere have expanded and non-durables declined. Textiles have been a major factor in this shift.

Massachusetts has a history of stability over the cycle; but now grows less rapidly during a "boom." Is this slower growth an extension of stability--concentration on income inelastic goods--or a weakening of important elements in manufacturing? Part of the report is directed to examining the slow rate of growth of manufacturing in Massachusetts both in the description and in an attempted explanation of causes. One hopeful indication cited was that Massachusetts now has a smaller share of its industrial employment concentrated in industries declining nationally.

3. Frederick W. Bell, "Changing Specialization and Bay State Growth." The New England Business Review, April 1965. (26)

This article examines the post war change in the composition of Massachusetts exports. The technique used--location coefficient analysis--has limitations preventing a precise evaluation of the export contribution of an industry. It is a quick and convenient method for determining whether an industry may be an exporter.

Bell's article ranks Massachusetts industries in 1951 and 1962 according to their contribution in export employment. Two important conclusions are evident (26, Table, p. 5): There is a considerable shift in the relative export importance of various manufacturing categories (Education, Research and Development, Private Hospitals, and Life Insurance) have assumed major roles in the export base of the state.

In view of the size of Massachusetts relative to New England it should be obvious that forecasts of the New England economy that examine only the role of manufacturing in the base are subject to a growing error. Further, a check of the other New England states--by similar application of this relatively cheap technique--should yield clues to changes in the economic base in the rest of New England.

4. Connecticut--"Manufacturing Industries." Connecticut Interregional Planning Program; Connecticut Development Commission; Hartford, November 1963. (30)

This report traces changes in type and location of manufacturing and makes projections of manufacturing employment. The Connecticut projections are made by two separate methods; the first is based on location coefficients and national projections of manufacturing, the second is a projection of Connecticut experience via the least-squares method. The second technique resulted in the more rapid growth estimate.

5. James A. Storer, William E. MacDonald, and Donald Fowler; "Planning for Development in the State of Maine." Jan. 1965. (31)

This brief report chronicles changes occurring in the Maine economy and offers arguments for the urgency of actions to improve the health of the Maine economy.

Maine population has increased 6% in a decade (1/4 of whom were military personnel) contrasted with a U. S. increase of 18%. Per capita income gains were below the national average. Employment increases are projected in pulp and paper helping to maintain employment in agriculture and forestry. Total manufacturing is projected to expand 2.9% by 1970, from 109,966 to 114,750.

6. Jerome L. Stein. "Economic Factors in the Location of Industry: Part One: The Chemical Industry" (1957) and George H. Borts. "Part II, The Metal Working Industries." (1959). (28)

These two reports explore the record and prospects of these industries in Rhode Island. However, in addition to examining what has happened, the two authors show the beginning of the analytical apparatus displayed more thoroughly in articles and in their book discussed below.

A major point is the use of an important judgment factor in predicting future growth. Instead of projecting on the basis of the region's record or disaggregating national projections, they emphasize the importance of determining regional variations in the rate of return in forecasting future growth and note some of the adjustments required for future growth.

D. Policy For Regional Growth Consistent With The National Interests

Several of the studies noted previously have numerous evaluations and policy recommendations, (the 1951 CEA report (2) Bright and Ellis (1), Harris (11), and Eisenmenger (4)). There is, in addition, a voluminous literature on various aspects of regional analysis, development, and location theory. Two of these sources are of particular relevance to the problem of economic development in New England and more particularly to the type of program for action to be designed by the Regional Action Planning Commission and the E.D.A.

1. Borts and Stein. "Economic Growth in a Free Market." (51)

This is primarily an analytical work with the objective of identifying key elements affecting the growth of regions. Economic maturity and slow growth is not explained by composition or industrial structure; rather interregional variations in the rate of capital--heavily influenced by immigration and other elements affecting the elasticity of the supply of labor --are shown to be a major determining force.

While this analysis is the main part of the book, it also contains (in chapter 9, a brief and easily read chapter) a careful evaluation of the appropriateness of alternative government policies designed to stimulate regional growth. The U.S. has never pursued a policy of laissez-faire toward regional development; however, "good" policy for a region must be consistent with "The goal of maximizing the national output." (51, p. 189)

Major points are: 1) Under what conditions and by what policies is a decline reversible? Should the worker or the job be moved? Factors influencing a decision are: can temporary subsidy of mobile capital create and continue self sustaining employment, can resource development add to a viable economic base, can tax policy at the state or local level alter real wages enough to retain employment? 2) Federal subsidies of depressed area consumption can be more efficient than federal biasing of the allocation of investment. Subsidized investment can result in the use of too much investment and can lead to an allocation of investment among regions that is not compatible with efficient allocation on a national basis. 3) Federal support of out-migration is needed because it is not locally popular. 4) Federal actions--beyond aiding migration--of two types are compatible with national efficiency: First, development of a resource based industry to raise labor's marginal productivity. Exisiting low investment reflects weak tax position of depressed areas plus several state jurisdictions may be invloved in the resources potential area. Second, Federal support for education is appropriate. A poor, declining area investing in education "will find the fruits of such investment are enjoyed in other regions." (51, p. 201)

2. John Meyer. "Regional Economics." American Economic Review, Mar. 1963 (57).

In this important review article, Meyer evaluates the major contributions in the "new area" of regional economics.

His article offers an extensive bibliography, an evaluation of the problems, accomplishments and prospects in theorizing about regional economics and offers advice for the future allocation of research into regional economics. This advice (57, pp. 45-48) should be of benefit to researchers and to policy planning agencies.

He urges more testing of hypotheses against data as well as the construction of broad measures and framework. Policy actions require greater knowledge of regional growth processes in a highly integrated, fairly homogeneous national economy. "To do this, regional economics almost certainly must become increasingly involved with hypotheses about the behavior and role of financial organizations, market structure, entrepreneurship, private and public investment decisions, taxes, fiscal policies, and all the other subjects normally encompassed in economics but now encountered only occasionally in regional economics." (57, pp. 47-48)

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TASK FORCE REPORT C

A Survey of the Economic Research on Domestic and Foreign Trade in New England

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SECTION 1 EVALUATION

I. Introduction

The purpose of the present document is to summarize briefly the more salient findings and methodological approaches of the few important studies of the interaction between the New England economy and its interregional and international trade patterns and volume. It also suggests areas where further research effort might be productive for the activities and programs of the Regional Action Planning Commission. Appended is a reasonably complete bibliography annotating a number of contributions--significant, minor, and peripheral--to our knowledge of the influences of extra-regional trade on New England and to our understanding of the region's adjustments to these "outside" influences. In the process of reviewing the existing studies a body of empirical information, available mainly in the more inaccessible documents, was noted down. While this was not an exhaustive listing of the data contained in the surveyed items it might nevertheless prove useful, unrefined and unorganized though it assuredly is. This empirical information is therefore also attached.

Full-dress empirical studies of the trade position and structure of the New England economy are few in number. These are not entirely consistent in their findings and approaches, but they constitute at present the only responsible basis for analytical appraisals of the impact of foreign and interregional trade on the New England economy. An important limitation of these pieces of research is that no one of them gives a comprehensible picture of the adjustment of the commodity composition and the internal and external geographic pattern of New England's extra-regional trade over a meaningful stretch of time. They do, of course, record data going back to the early years of this century--and these data appear to have been reported conscientiously and used skillfully--but the data are only partial and their compilation was not designed from a uniform perspective.

A marshalling and study of existing data, therefore, cannot provide the body of empirical information that would be ideal from the viewpoint of an economic historian wishing to map out the historical profile, even within this century, of New England's involvement in trade affairs beyond its regional boundaries and of its responsiveness to these external influences. Nevertheless, while such a collection of existing data would not be ideal its analysis would be revealing and, it seems, sufficient statistical information exists in the items reported in the bibliography to warrant a quantitative-historical retrospective study of the influences of foreign and interregional trade on the New England economy and of its reactions to this trade. This retrospective study should be of limited scope and duration; it should rely solely upon existing data, without attempting to generate any new empirical material. These limitations are consistent with my conviction, arrived at during the course of perusing the material cataloged below, that World War II represents a sort of watershed for the impact of international and interregional trade on the New England economy. The back-to-back disruptions of that War and the depression of the 'thirties resulted in what, in an historical context, might be called a discrete structural transformation of the New England economy. Consequently findings based upon information for the period preceding the mid-1940's would have only marginal significance for an understanding of the economic problems of today's New England--so marginal that a retrospective research effort more comprehensive than that just suggested would seem to be a questionable use of resources and talent.

II. Review of the Major Studies

The most recent tabulation of the pattern of New England's foreign trade is that of the Bureau of the Census (46, 47, 37) showing figures for 1963 and 1960. Based upon a questionnaire of manufacturing firms employing more than 100 workers for each plant exporting, in 1963, at least $25,000 worth of goods, the data embrace some 68 per cent of the value total of U.S. manufactured goods exports, i.e., $11.0 billion out of $16.5 billion. These data were then "inflated," by different means depending upon the percentage size of the survey response, in order to allocate the $5.5 billion "residual" among the several states, deriving distributions for the total value of U.S. exports of manufactures in 1963 and 1960. The tabulation is therefore quite comprehensive of that group of commodities and the response to the questionnaire and means of allocating the "residual" suggest that the distribution is fairly accurate. The commodity breakdown is also reasonably disaggregated. What is reported, in short, is the value of exports by each state by each of twenty commodity groups derived from the 2-digit Standard Industrial Classification categorization of originating producing plants, with further refinement within the 2-digit SIC grouping so that the ultimate breakdown of the data is on a 4-digit basis. Data are also cited for the Standard Metropolitan Statistical Areas. This comprehensive tabulation, available for 1960 and 1963, is as yet unanalyzed.

The limitations of this tabulation for analytical purposes are obvious. First of all, it accounts only for manufacturers; the geographic allocation of exports of agricultural commodities and other primary materials and of services is not compiled. Moreover, the data are for international exports only; interregional exports are, of course, not comprehended in the tabulation. Thus, the tabulation falls short of supplying the foundation for a study of the total impact of extra-regional trade.

The allocated figures are derived from an origination concept based upon location of the plant adding final value to the product--the so-called point of final fabrication basis of export origin. Ashton's study (2, 28) supports usage of this concept, finding that in over half of the New England plants exporting commodities at least 85 per cent of total value of the good was added at the point of final fabrication. Nevertheless, for his sample firms this percentage of value added at place of final fabrication tapered off substantially. Thus, while Ashton concludes that point of final fabrication is, of those origination concepts for which data are readily available, the most expedient his calculations and discussion suggest that utilization of other origin concepts may yield somewhat different results about the state-by-state distribution of export performance. We could have hoped that the resources and inventiveness of the Census Bureau would have contributed a more empirically refined and analytically accurate basis for geographical allocation. But in point of fact, none of the conventional attempts to allocate trade by state of origin and destination--as distinct from those stemming from the input-output methodology--goes beyond the point of final fabrication concept of origination or "place of first destination" concept of import destination. Clearly, more effort and imagination needs to be applied here and Ashton's study is an excellent starting point.

Additionally, the comprehensive breakdown of the data is published for only two years, although one suspects, again from data in the minor documents cited in the bibliography, that similar information for a larger number of years, stretching back to 1947, is available in the working files of the Department of Commerce.

Finally, the usefulness of the tabulation is substantially diminished, particularly for analyzing the consequences of trade for some of the smaller, less industrialized states, by the "gaps" in the data which were inevitable if the identity of individual firms is to be concealed. A scanning of the various "cells" in the tabulation reveals a host of blanks for Maine, New Hampshire, and Vermont. Again this information is undoubtedly available in the files of the Department of Commerce (if retrieved before lost), and while anonymity would still prevent publication of the data they are essential inputs for an analytical study.

Going back in time, the next significant study of foreign trade and the New England region comes from a project undertaken by Professor Romney Robinson of Brandeis University. Unfortunately, the report generated by this study (40) seems no longer to be available, although it is possible that the Library at the Federal Reserve Bank of Boston (refer to Miss Eleanor DiGiannantonio) will be able to locate a copy in the Bank's research files. The results of the study are, however, published in capsule form (30). The primary purpose of this study was to examine whether documentary evidence required by the U. S. government of exporters and importers provides a usable measure of the value of exports and imports of New England. The approach of the study is to use a one per cent sample, by the Census Bureau, of all U. S. firms exporting and importing in May 1955, with a somewhat larger sample for trade involving New England firms and ports. Exporters reported the point at which the commodity was "grown, manufactured, assembled from component parts, or last materially altered;" importers reported the destination of their merchandise and the purpose for which, to their knowledge, the item was imported. Thus, the data incorporate, unlike the tabulation just discussed, imports, as well as exports, and presumably run the gamut of *all* commodities imported and exported; services, however, are still excluded.

On the basis of these one-month figures it is found that documentary evidence attributed about one-third of the total value of New England imports, when the total value figure is derived from official documents, to New England when, by questionnaire evidence, it is found eventually that this amount leaves New England for other regions. The questionnaires, however, show that something more than one-third of total imports from foreign countries in fact coming into New England is shipped in interregional trade from other U. S. regions. For exports it is found that about one-sixth of the value attributed by the official documents to New England is due to exports from other regions; whereas about one-fourth of the value of exports in fact emanating from New England is not revealed by the documentary evidence. Interestingly, although the documentary evidence thus understates both New England imports *and* exports the understatement is of the same degree for both. Hence, the *gap* between exports and imports, in New England's case an import surplus, remains essentially the same whether the dollar values of imports and exports of New England are derived from the official export and import documents or from questionnaire responses. Both New England import and export values are, however, substantially under-reported in the documentary evidence.

The generality of these two conclusions suffers from one critical constraint of Robinson's study. It examines data for one month only. No effort is made to adjust these data for seasonal patterns; nor is it determined that May 1955 is somehow "representative." Nevertheless, the study, from the published account available, appears to be provocative and efforts should be made to retrieve the basic report. At the very least, it should be ascertained whether the Census Bureau retains the sample data which it gathered for the Robinson study. If so these data might reveal a commodity breakdown--as well as a geographical distribution--from which can be built up a tabulation similar to, although probably not identical with, that discussed in the previous section of this report.

So far the emphasis has been totally on foreign trade, although the Robinson study has interregional trade overtones. Two documents reporting for 1949 (35, 36), and summarized in (15), provide empirical information on a substantial portion of New England's interregional trade as well as its foreign trade. These are the most recent data available on New England's interregional trade. For foreign trade an effort is made to pinpoint the country or region to which exports were being sent and from which imports were arriving. Thus the "overseas" geographical pattern of trade is revealed, although the number of country categories used is not sufficient for more than rudimentary analysis of the possible market effect of events abroad. These breakdowns, as well as that for interregional trade, are compiled basically for five broad commodity groups, including primary products but excluding services, although data on principal commodities are reported separately. The foreign trade figures are based on rail and waterborne shipments from data supplied by the U. S. Corps of Engineers and from a small sample of audited railroad carload waybills provided by the Interstate Commerce Commission. Unlike the data recorded above on a value basis, these figures are in tonnages; to compute value figures it would be necessary to value each commodity separately--a technique of consolidation pioneered in this field by Miss Hartland's study (31).

These figures reveal the rather large disparity between the tonnages of in-shipments by rail and water, compared to the tonnages of out-shipments. It is apparent that many ships and railway cars leave New England empty, or else take on in New England a low-weight per volume product. Indeed, this phenomenon is often referred to, and it together with the fact that the import surplus on a tonnage basis is much larger than the import surplus on a dollar value basis strongly suggests that New England interregional and foreign imports are of low unit value compared to its interregional and foreign exports. The commodity breakdowns of these classes of trade support this inference.

Aside from the fact that these two documents fail to provide value figures they also do not encompass another possible source of trade statistics. The data in these documents, as already noted, are derived from the carriers of products. Yet, no attempt was made to incorporate interregional and foreign (Canadian) imports and exports hauled by truck over New England's highways. Some of this information is available from the reports of the Customs Districts, but again Miss Hartland has demonstrated that other devices are available by which to include interregional imports and exports via trucking. While this is over-all not an insignificant item, it is of substantial importance for particular groups of commodities, especially those from the agricultural sector. Thus, it can be inferred that the trade pattern presented by these two documents is somewhat "wide of the mark" and certainly underrepresents the exports and imports of agricultural products.

Most of the remainder of the empirical trade pattern and composition studies of the conventional variety can be treated in shorter compass. None of them is, except for methodological insights provided, directly germane to an analysis of New England's problems in the postwar era. Roorbach (43) provides a brief summary of the waterborne and rail tonnage figures for 1933. This study is of interest primarily because it provides a very crude benchmark, along with Miss Hartland's more thorough efforts, of the "trade position" of the New England economy in the depths of the Great Depression. One can gain, by comparison with Roorbach's material, something of the flavor of the magnitude of the adjustment required by virtue of New England's heavy participation in extraregional trade as a consequence of the gigantic drop off in domestic economic activity and of the closing up of external trade channels.

Prior to that the Department of Commerce issued a comprehensive analytical and statistical account of the commodity composition and external and internal geographic pattern of New England's exports and imports for 1928 (23). These data, especially those for exports, are listed in value terms at a rather disaggregated level of commodity category by state of origin or destination. Figures for the country or regional destination of New England's exports are also provided, although a similar compilation for the country origin of New England's imports is not given. This study is path-breaking in the sense that it appears to be the first careful attempt to analyze on the basis of statistical materials the qualitative and quantitative characteristics of New England's participation in foreign trade, although Harrison's evaluation (13) of the possible impact of the St. Lawrence Seaway is in the same genre. The Department of Commerce report, moreover, gives a snapshot of New England's "trade position" near the interwar peak in domestic economic activity--1928--and if it could be validly compared with Miss Hartland's study of the depression period--and with the exercise of due caution it seems it can--an enlightening juxtaposition is available.

This brings us to Miss Hartland's magnificent appraisal of the interregional payments position of New England at two year intervals starting with 1929 and ending with 1939 (31). This is by all odds the most extensive and intensive empirical effort to determine the over-all trade figures for the region. A summary of this contribution seems presumptuous and superfluous, since it has become a classic in the literature of regional economics and has served as the methodological and procedural paradigm for a host of similar studies of other regions. Suffice it to say that Miss Hartland estimates for New England the "net" payments or receipts for a number of items. Tonnage data supplied in one way or another by the various types of carriers, including, for the only time apparently, tonnage representing goods hauled by truck, serve as the basis of the estimates of in-shipments and out-shipments. These tonnage data are then "inflated" by the use of the appropriate component of the wholesale price index to derive value figures for these shipments. From these value estimates a residual net movement of funds into or out of New England is computed. This residual is an accurate representation of the gross capital account in New England's balance of extraregional payments only if all other items are accurately and completely tallied.

It would, of course, be miraculous if Miss Hartland had achieved by her estimates a faithful reproduction of the trade accounts for New England. At many points in the compilation she has unavoidably had to rely on makeshift data and upon rough approximations for allocating procedures. Nevertheless, her study is as comprehensive and careful as conceivable, given the data available at that time. Moreover, it provides estimates of service account figures, which for New England is certainly a major segment of its trade position vis-a-vis the rest of the world. It would appear appropriate therefore to duplicate, with such adjustments and refinements as now seem reasonable, Miss Hartland's research using data for the postwar period. As noted above, her results are applicable to an era when the world as a whole was suffering from a severe depression; therefore, her actual estimates may today be misleading if they are used to form policy judgments about New England's role in extraregional trade. Yet, it might prove instructive to compare her results for this period with those of Ashton (24) for three years in the 1950's. Ashton's findings suggest that New England manufacturing exports to foreigners are more volatile in the face of external influences than are the manufacturing exports of the entire U. S. One could determine, by such a comparison, whether New England exports have become more or less sensitive to external events relative to the U. S. as a whole, although again care must be used in interpreting data from such economically desperate eras as the 'thirties and the 'fifties.

The point is that Miss Hartland's study is now almost 30 years out of date as a picture of the trade position of New England. Her study--again within its data limitations--is, however, so admirable and her techniques have such power to derive truly valuable and otherwise unobtainable empirical information about the region that a similar research effort would now seem most rewarding.

Romans, in a recently published monograph (42), also constructs for 1957 a state-by-state net capital flow figure. His procedure differs from that of Hartland, adopting the now familiar absorption approach to the analysis of international payments adjustment as his basic theoretical framework. Therefore, he does not estimate extraregional trade flows directly; rather he calculates estimates of gross state income, on the one hand, and gross domestic spending (absorption) by state on the other. The difference between these two aggregates for any state represents net exports or the net flow of funds into or out of the state or, by appropriate adjustment, region. On the basis of this type of calculation Romans ascertains that New England, and the Mideast, are the two greatest regional exporters of capital--New England exporting in 1957 $250 per capita. The fact that New England, and the Mideast, were the two slowest growing regions during the period since 1929 seems to be causally related to their net capital exporter positions. Moreover, the relative position as a regional net capital exporter or importer is functionally related to the size of the property income share in the several states.

This is a stimulating approach and one that would provide the semblance of a check to the kind of residual derived from a Hartland-type study. It would seem, however, that one difficulty of the approach is in its failure to accommodate changes in hoarding--i. e., in liquid asset positions--by the states in its calculations. It suffers also from the usual problems attendant to the allocation of those expenditure figures available only on a national basis to the various states. In particular, allocations of nationwide investment totals are necessary and these are undertaken at the relatively aggregated 2-digit SIC level. Still, these are picayune criticisms of a fundamentally valuable approach and it seems likely that further efforts, using the Romans format, to derive capital flow estimates for years other than 1957 would pay off handsomely, especially in view of his hypothesis, as yet not carefully tested, that slow regional growth and heavy capital outflows are causally related.

Still another way of characterizing interregional trade is supplied by the input-output technique. The two extant studies utilizing this framework to derive commodity flow relationships for New England, Isard's (33) and Bourque's (25), have different emphases. Isard estimates the demands that the operation of the New England economy puts upon the rest of the economy by determining the inputs, in dollar terms, for each of the producing sectors of New England together with the outputs of these sectors. The difference between these two figures for each sector, of course, represents the net surplus or deficit in the commodity balance for that sector. Isard's computations are based upon national input-output coefficients for 1947.

The limitations of input-output techniques per se have received wide publicity, and need not be repeated here. One or two comments in the context of applying the technique to regional analysis seem appropriate, however. Since the national input-output coefficients do not precisely represent those applicable to New England--the relative factor intensities of the several sectors may differ in New England from those in the U. S. and the precise output composition of any producing sector varies regionally--Isard's estimates of New England input-output relationships are of a hybrid quality. Nevertheless, Isard's commodity balances calculations provide what is likely to be the best summary data of the structural relationships between the New England economy and the rest of the world. It is difficult to see how, with limited resources, a more valid picture could be presented although it is useful to point out that new national input-output coefficients for 1958 have been derived and these could be used profitably to update Isard's matrix. A further elaboration of his approach, that might be revealing although its limitations would make careful interpretation mandatory, would be to compute the New England input-output matrix for each of several specific years by applying the given 1958 (or 1947) coefficients to the value of output of the various New England producing sectors in the several specific years. This, in a sense, would trace out the structural evolution of the New England economy and would reveal something of its adaptive capabilities.

Bourque's study uses the input-output format to determine the dependence of the manufacturing sectors of the U. S. regional economies on foreign trade. His estimates do not depend upon the input-output coefficients and his technique differs appreciably from that of Isard. The technique is, in fact, too complex--although not abstruse--to relate here, but it should be noted that with proper variations it would be possible to derive calculations of the importance of exports and imports of two types of "regions": 1) those from which exports originate or against which imports compete; or 2) those embracing the location of the production of net outputs which are important in foreign trade, whether or not the product actually enters foreign trade. This, of course, has always been a dichotomy forced upon the "origination concept" by the kinds of data that are available. The fact that Bourque's method permits this distinction to be carried through the calculations makes it a useful approach for comparative analysis. It is also quite likely that imaginative emendations to his general method--perhaps, indeed, using the input-output coefficients within his format--could provide penetrating variants of the trade structure of a region.

One notable gap in the research on the impact of extraregional trade on the New England economy has been quantitative studies of the effects on and responses of individual industries, or even producing sectors. Only the textile industry seems to have been singled out for this kind of treatment. These textile industry studies, noted in the bibliography, take their point of departure from the rapid disintegration of the New England industry during the interwar period and, hence, do not have quite the focus required for a "trade impact" study. They are not, moreover, of the kind of "scientific" quality that warrants building upon them responsible policy programs. Yet, quantitative industry-impact studies seem a valid and productive approach to the evaluation of the effects of trade upon a region.

In this regard, it should be stressed that industry may be interpreted in diverse ways. The conventional definition is, of course, appropriate. There are obvious industries--machinery, electrical machinery, transportation equipment, and others--the study of which would yield significant dividends. But New England is also a major supplier of services--particularly educational and scientific consulting services as well as the more conventional services of insurance and financial facilities--and it would seem appropriate to undertake impact studies of several of these. But so far, it seems, no serious effort along these lines has been mounted.

SECTION 2 BIBLIOGRAPHY

I. General and Descriptive

1. "Adjusting to Tariff Changes," New England Business Review (May 1962).

   Contains a short table listing the employment, by industry, in major exporting and import competing industries of New England. Export industry is defined as one in which exports, nationally, equal 5 per cent or more of domestic shipments. Competing industry is one in which imports to the United States equal 5 per cent or more of the domestic shipments plus imports. Only industries employing 6,000 or more persons are listed.

2. David J. Ashton, The Meaning of Export Origin: Research Report to Federal Reserve Bank of Boston No. 10 (Boston: Federal Reserve Bank of Boston, 1960).

   An empirical analysis, based upon a sample of a large number of firms, of the validity of various potential concepts of export origin. Concludes, because of the heavy concentration of contribution to total value at the place of final fabrication, that this is the most expedient concept at the present. Discussion offers useful suggestions as to other possibilities and by implication points to methods of empirical measurement of these other export origin concepts.

3. Bela Balassa, Recent Developments in the Competitiveness of American Industry and Prospects for the Future (Homewood, Ill.: Richard D. Irwin, 1964).

   While this volume is concerned predominantly with forecasting the trade patterns of the underdeveloped countries it nevertheless provides a useful methodology for projecting trade in any type of commodity. The final chapter, "Trade Projections for Manufactured Goods," contains the projections for several manufactured commodities, some of which are very important in the structure of the New England economy: leather and footwear, veneer, plywood, wood and cork manufactures and paper, yarn, cotton fabrics and clothing, and machinery and metal manufactures. Data in the appendices should be useful in building up any kind of estimate of the prospects for New England exports.

4. John D. Black, The Rural Economy of New England: A Regional Study (Cambridge: Harvard University Press, 1950).

   Chapter 7, "Trade and Transportation," contains a short description of the foreign trade and the intra-regional trade of New England. The foreign trade picture is based upon tonnage data for the various New England ports.

The intra-regional trade pattern is built upon the Department of Commerce's study, "The Commercial Structure of New England." This document delineates thirteen major zones of commercial and trade influence, the boundaries of which were determined on the basis of an interview of some 2,000 New England businessmen.

5. Harold Van B. Cleveland, The Trade Expansion Program and Its Meaning for New England: A Report Prepared for the New England Council (Boston: March 20, 1962).

   Concludes that the New England manufacturers would not be appreciably disadvantages by a reciprocal reduction in American and European Common Market tariffs. The reasons for this are that New England manufacturers are characterized by rapid product innovation and because New England has a larger stake than the U.S. economy as a whole in the export of manufactures. Even those products of New England industry which are at present heavily protected would apparently not be as vulnerable to import competition as is generally assumed--a conclusion suggested by Hodgson Research Report.

6. Committee appointed by the Conference of the New England Governors, Report on the New England Textile Industry (1952).

   As concerns the impact of foreign textile imports and export markets, this report makes the general point that the New England textile industry is too much concerned with foreign competition. The major competition is domestic. However, foreign competition is of some importance and due to the fact that the textile industry is heavily concentrated in two regions in the United States, and may generally have excess capacity, the report recommends that tariffs be reduced very cautiously. The most expeditious time for tariff reductions is during buoyance in the textile industry.

7. Committee on the New England Economy of the Council of Economic Advisors, The New England Economy (Washington, D. C.: U. S. Government Printing Office, July 1951).

   Chapter 12 of this document, on the balance of payments, relies primarily upon Penelope Hartland's study of New England's interregional payments (31). In addition it provides figures for the total New England exports in 1947.

8. "Developments and Prospects of the New England Economy," Monthly Labor Review (October 1951), 451-60.

   This is a review of the analytical conclusions reached by the Committee of New England Economists for the Council of Economic Advisors, The

New England Economy (7). The report stresses that New England must concentrate further on the manufacture of durable goods and must rely more heavily upon New England's access to foreign and particularly Canadian raw materials.

9. Robert W. Eisenmenger, "The Dynamics of Economic Growth in New England, 1870-1960," Harvard Ph. D. dissertation (1964). Not available. (See annotation of this study in Task Force Report B, Section 2, I A #7).

10. "Exporters' Use of Port of Boston," New England Business Review (July 1960).

From Boston Federal Reserve Bank survey data, it is estimated that about 85% of New England export tonnage moves through Port of New York. If one excludes those exporters closer to New York than Boston, New York still gets 80% of the tonnage for which the two ports are competitive. This New York's share includes all of the export tonnage of 1/2 of Massachusetts exporters. The most important reasons for using New York were, in order, customers' instructions, frequency of sailings, proximity, use of New York forwarding services, and availability of direct sailings. Thirteen other reasons are listed. Of the plant's closer to Boston than New York, only 12% used Boston for more than 50% of their export tonnage. Exporters who used Boston to some extent still shipped 65% of their tonnage through non-New England ports. These results correspond to those reported in Monthly Review (February 1950), which showed that in 1948 New York handled 80.9% of New England's export value. Boston handled 11.5% and other ports 7.6%. It is to be noted that since these data report 1948 value and present volume they are not really comparable.

11. Seymour E. Harris, The Economics of New England: Case Study of an Older Area (Cambridge: Harvard University Press, 1952).

This is a descriptive-analytical study of the historical adjustments of the New England economy. Major points of relevance: New England is more heavily dependent on exports than other U. S. regions and its concentration in "declining" industries is striking.

12. Seymour E. Harris, "Interregional Competition: with Particular Reference to North-South Competition," American Economic Review (May 1954), 367-80.

This is a reflection of Harris' book for the New England Governors' Textile Committee. It is noted for its view that the important competition for American industry is interregional rather than international. He contends that government policies have made interregional adjustments more difficult, particularly as between New England and the South. These adjustments are nevertheless taking place. He outlines the qualitative nature of these adjustments.

13. Henry I. Harriman, New England and the St. Lawrence Seaway (Boston: 1929).

    This is one of the first analytical studies using railroad waybills, tonnage data through port facilities, and similar information to analyze an impact problem. Specifically, Harriman concludes that the opening of the St. Lawrence Seaway will bring substantial benefits to the New England economy--primarily through a lowering of transportation costs. He projects an expansion of New England exports of grain and flour.

14. Raphael W. Hodgson, Interview Reports on the Effects of Trade Liberalization on New England Manufacturing: Research Report to Federal Reserve Bank of Boston No. 22 (1963).

    This report contains the results of interviews designed to ascertain the effects of trade liberalization upon various industries important to New England. The industries selected were industrial machinery, the shoe industry, industrial instruments systems, machine tools, tableware, and woolens and worsteds. It was thought that some of these industries would be affected adversely by trade liberalization, while others would be affected favorably.

15. National Planning Association, Committee of New England, The Economic State of New England, Arthur Bright and George Ellis (eds.) (New Haven: Yale University Press, 1954).

16. New England Governors' Committee on Public Transportation, The St. Lawrence Seaway and New England (including a research study by Sargent Russell), (1956).

    The study suggests the importance to New England of grain from the Midwest and Canada as a "bottom cargo." Estimates that the opening of the Seaway may divert 50,000 to 100,000 tons of New England import cargo.

17. New England Governors' Textile Committee, New England Textiles and the New England Economy (February 1956, March 1957, March 1958, 1958-1959).

    This is a summary of the ills of the New England textile industry, and the Southern textile industry as well. The major emphasis being that the textile industry as well as declining naturally has suffered from various government policies, including the agricultural price support program, tariff concessions and the like. The 1958-59 report suggests that just as quotas have been used to protect domestic prices of agricultural commodities, so Section 22 of the Agricultural Act might be interpreted so as to use quotas to restrict the imports of commodities processed out of agricultural products.

18. "New England's Investment Overseas," New England Business Review (February 1963).

This is a summary of Ashton's Federal Reserve Bank of Boston Research Report No. 23. Twenty firms participated in the study. The data suggest that foreign investment by these firms represented a capital outflow of at least ten to 12 million dollars. Hence for the region as a whole foreign investment was substantially larger. Of the reasons cited for overseas investment, Europe's recent rapid rate of growth and the possibility of European trade discrimination were stressed most often.

19. Douglas C. North, "Location, Theory and Regional Economic Growth," Journal of Political Economy (June 1955), 243-58. Charles M. Tiebout, "Exports and Regional Economic Growth," Journal of Political Economy (April 1956), 160-64. Douglas C. North, "A Reply," Journal of Political Economy (April 1956), 165-68. Charles M. Tiebout, "Rejoinder," Journal of Political Economy (April 1956), 169.

This series is a conceptual discussion of the value of the "export base" as an implement in regional analysis. North, arguing from the long-run perspective, takes the position that the export base concept is a valid framework within which to understand regional growth. Tiebout, whose viewpoint is short-run, argues that the export base is only one of many concepts which must be brought into an analysis of the short-run change in a region's economic condition.

20. "The St. Lawrence Seaway and New England," New England Business Review (July 1956).

This study notes that for some years the bulk of freight handled by New England railroads and ports has been local in origin or destination. Railroad traffic between ports and the Great Lakes has tended to by-pass New England because of adverse freight rate differentials. Only a tiny fraction of the eastward flow of North American grain now passes through Portland and Boston; but it is sufficient to offer a "bottom cargo" for ships to carry on the return journey, hence the grain trade serves as an inducement for ships to call in New England. The current traffic deficit of New England ports lies especially in exports. There is some evidence to indicate that, even after eliminating incoming fuel tonnage, New England cargoes' weight per unit is greater for imports rather than exports.

21. "Survey of New England International Business and Its Impact on the Economy," World Trade Center News Letter (February 1958). Not available.

22. U. S. Department of Commerce, Foreign Trade Impact Study, State of Massachusetts (Washington: 1958). Not available.

II. Empirical Data, Analyses, and Methodology

23. C. E. Artman and S. H. Reed, Foreign Trade Survey of New England, U. S. Department of Commerce, Foreign and Domestic Commerce Bureau, Domestic Commerce Series 40 (Washington, D. C.: U. S. Government Printing Office, 1931).

    This is the first careful study based upon value series of the role of international trade in the New England economy. It provides data on exports and imports by New England state, by commodity, by country of destination (for exports only). These data are discussed analytically.

24. David J. Ashton, New England Manufacturers' Export Practice and Potential, Research Report Federal Reserve Bank of Boston, No. 9 (Boston: Federal Reserve Bank of Boston, 1960).

    In the main, data are based on responses to a limited survey made in 1959 covering manufacturers' exporting activities for 1954, 1957, and 1958. Major significant findings are that firm size is positively associated with exporting business and that New England manufacturing exports are more volatile over the cycle than U. S. manufacturing exports as a whole.

25. Philip J. Bourque, "The Domestic Importance of Foreign Trade of the United States, by Producing Regions, Manufacturing Sector, 1947," Review of Economics and Statistics (November 1954), 401-08.

    This article tabulates, for New England and eight other regions, the value of exports in twenty industries and the value of competing imports in a similar number of industries. The data suggest that, of $12 billion worth of exports in 1947, approximately $900 million came from New England and, of $4.1 billion of competing imports in the U. S., $275 million competed with New England manufacturing. The data suggest that the importance of foreign trade to the various regions is highly uneven, both absolutely and relatively, and hence that trade expansion or import reducing policies will affect the several regions in varying degrees. The article gives a basis for pinpointing policy by type of product in order to maximize or minimize the impact of foreign trade policy upon any given region.

26. Philip J. Bourque, "Regional Importance of Foreign Trade in Manufactures," Southern Economic Journal (January 1958), 327-37.

    An interesting empirical study of a region's relative participation in foreign trade compared to its participation in domestic manufacturing activity. He finds that the shares of regions differ from their participation in manufacturing activity and suggests that this reflects regional specialization in production and selectivity in the kinds and amounts of goods entering foreign trade. Specifically, he notes that the changing participation of New England in production of manufactures, together with changes in the composition of imports, has tended to make New England's output relatively less competitive with imports. In short, the New England economy is becoming less dependent upon imports than seems to be suggested by the current levels of manufacturing employment or value added.

27. Committee of New England of the National Planning Association, Origin and Destination of New England Rail Traffic, 1949, Staff Memorandum No. 1 (by Ray S. Kelley, Jr.), (March 1952).

This study is based on a one per cent sample of audited carload waybills for 1949. It shows, on basis of inflating the data from sample, that New England railroads originated or terminated 49 million tons of domestic freight. Of this total, 23.6 million tons came from other regions; another 7.1 million tons left New England, having originated there. For every ton of rail freight moving out, 3.3 tons moved in. Information on principal commodities is listed separately, but movements are presented mainly in commodity groups to and from eight U.S. regions for manufactured products, products of mines, products of agriculture, of forests, and animal products. There is no attempt to give dollar values to the flow. Dollar values could be obtained by valuing each commodity separately. It includes rail shipments only.

28. "Exports: Somewhere, U.S.A.," New England Business Review (April 1960).

This is a summary of Ashton's Federal Reserve Bank of Boston Research Report No. 10, and it suggests that customs district data are an inaccurate measure of the exports originating in a given region or state. An alternative, the survey method, may not capture all of the exports of a given region since some firms are frequently unaware that their products are exported indirectly. It is the problem of multiple origin that is most vexing. With multiple origin, no single origin concept would be a precise measure of the region's exports. On the basis of a survey of production data of 483 plants, it was suggested that, of firms and industries emphasizing exports, 94 per cent were in a category which adds, as value added, 30 per cent or more of the total value of their output. It was therefore concluded that the location of final stage of manufacturing is the best single origin location of an export commodity.

29. The First National Bank of Boston, New England Trends (Boston: The First National Bank of Boston, 1939).

Page 34 of this document provides a table showing annual imports and exports through New England custom districts by dollar value for the period 1900-1938. This table shows the approximate balance for the decade and a half prior to World War I, with exports being virtually stable and imports expanding slowly. The tremendous impetus to both exports and imports during World War I was followed during the 'twenties by a return of exports to the pre-war level while imports remained at rather high levels. Thus, in the 1920's a substantial import gap opened up. This import gap remained throughout the 1930's but was substantially reduced in magnitude due to the rapid reduction in imports during the downswing of 1929-1933. The evidence suggests a substantial cyclical swing in imports, with exports being less sensitive although still conforming to the business cycle.

30. "Foreign Trade and the New England Region," New England Business Review (August 1956).

A report on Robinson's study of the differences in estimating trade value from official exporter-importer documents and from questionnaires of exporters and importers. See item 1 in the Appendix to this task force report.

31. Penelope C. Hartland, Balance of Interregional Payments of New England (Providence: Brown University, 1950).

A classic in its field. The methodology utilized is, today, its most useful contribution. Tonnage data from various carriers are "inflated" by wholesale prices to derive value figures, from which gross capital flows are estimated. The estimates are biennial for the decade beginning 1929.

32. Penelope Hartland, "Interregional Payments Compared with International Payments," Quarterly Journal of Economics (August, 1949), 392-407.

This study provides rudimentary data on the inter-district flow of funds from the Boston, New York, and Minneapolis Federal Reserve Districts for 1919-1939. Miss Hartland argues cogently that the effective operation of the gold standard within the United States was due substantially to factor mobility and by implication that the international gold standard failed because of lack of factor mobility.

33. Walter Isard, "Regional Commodity Balances and Interregional Commodity Flows," American Economic Review (May 1953), 160-180.

This paper contains a table giving the commodity requirements and balances for New England in 1947 for fifty industries. The figures in the table are based upon the input-output coefficients estimated for the United States. On the basis of these data one can determine whether New England was a net exporter or net importer with respect to each of the listed industries. The industries listing the largest import balances were: agricultural and fisheries, and food and kindred products. Textiles contributed by far the largest export balances, followed by other machinery, leather and leather products, miscellaneous manufacturing, other electrical machinery, and metal working machinery. Isard presents a useful discussion of these data as well as his theorizing about interregional commodity flows on the basis of input-output data.

Penelope Hartland Thumberg's comment on this paper (pp. 200-202) points out the implications of input-output tables for interregional analysis.

34. Leon M. Moses, "The Stability of Interregional Trading Patterns and Input-Output Analysis," American Economic Review (December 1955), 803-32.

This article is interesting primarily for its development of an input-output system on a regional basis. The empirical results are of little relevance since the United States is broken down into three regions only--the East, the Midwest and the West.

35. National Planning Association, Committee of New England, New England's Trade with the Rest of the United States and with Foreign Countries, Staff Memorandum No. 12 (Boston: 1953).

See item 4 in the Appendix to this Task Force report.

36. National Planning Association, Committee of New England, Origins and Destinations of New England's Rail Traffic, 1949, Staff Memorandum No. 1 (Boston: March 1952).

37. "New England Products Abroad," New England Business Review (April 1962).

The data for the article are from the U.S. Department of Commerce compilation "Value of Exports of Manufactured Products, by Region and State, and by Major Product Group: 1960." (46) The article shows that Massachusetts and Connecticut, combined, export more than 80 per cent of the commodities exported by New England; that New England exports only 6.6 per cent of the United States total; and that 26.4 per cent of the U. S. exports of machinery, except electrical, come from New England. Similarly, the figures for New England exports of transportation equipment is 16.1 per cent; for electrical machinery, 8.5 per cent; for textiles, 6.6 per cent. Thus New England has average or above average performance only in these four industries. For the remainder, its share by industry is below that of New England's share in total U. S. exports.

38. "The Port of Boston: 1957," New England Business Review (July 1957). See item 3 in the Appendix to this Task Force report.

39. "The Relative Importance of Trucking in New England's Interregional Trade," Federal Reserve Bank of Boston Monthly Review (January 1952).

This article reports that in 1950 approximately 29 per cent of the total tonnage of all commodities shipped to and from New England were accounted for by trucking. The estimate is aggregated from truck shipments as a percentage of total tonnage in approximately 50 different commodity groups. Estimates by commodity groups are also reported.

40. Romney A. Robinson, A Pilot Study of New England's Foreign Trade: A Description of Methodology and Findings, Unpublished Research Department Memorandum (Boston: Federal Reserve Bank of Boston, 1956). Not available.

41. Romney Robinson, "Water Transportation and New England: An Economic Survey of the New England Seaports." (A Report to the New England Governors' Committee on Public Transportation) Water Transportation Policy for New England, Report No. 8 (Boston: The Committee, 1957).

Chapter II contains tonnage figures, by all significant New England Ports, by commodity, by export and import, by foreign and coastwise shipping for 1955; gross tonnage by significant port, 1946-55; and gross tonnage, exports and imports, for foreign and coastwise shipping, for Boston, Portland, and Providence, at 5 year intervals, 1920-55. Chapter III is solely on Port of Boston.

42. J. Thomas Romans, Capital Exports and Growth Among U. S. Regions (Middletown: Wesleyan University Press, 1965).

This is a novel approach, based upon the difference between state income and expenditure, to the measurement of net interstate capital flows. Primary data are for 1957. The results show that New England was a heavy exporter of capital and that this may be responsible for its slow growth rate since 1929.

43. G. B. Roorbach, "The Importance of Foreign Trade to New England," in American Geographical Society of New York, New England's Prospect: 1933 (New York: American Geographical Society, 1933).

The data analyzed by this chapter consist of customs district export and import figures in value terms beginning in 1860 and ending in 1930, with five year averages from the period 1871 to 1925. Also shown is the tonnage of imports and exports by water from the various New England ports in 1930. An interesting map (p. 379) shows, for 1928, the value of exports by New England states and their principal routes of shipment.

44. S. Spiegelglas, "Some Aspects of State to State Commodity Flows in the United States," Journal of Regional Science (1960). Not available.

45. Edward L. Ullman, American Commodity Flow (Seattle: University of Washington Press, 1957).

Uses one per cent I. C. C. sample of waybill statistics to compose commodity flow maps (for agricultural products, animals and products, minerals, and petroleum products, forest products, manufacturers and miscellaneous, and totals) on an origin and destination basis, for Connecticut (1948), Maine (1950), Vermont, and New Hampshire (1950).

46. U. S. Department of Commerce, "Value of Exports of Manufactured Products, by Region and State, and by Major Product Group: 1960" (Washington, D. C.: U. S. Government Printing Office, 1961).

The title of this one-page document is descriptive of its tabulated contents. The data pertained to the New England states as well as the others. A summary will be found in the New England Business Review (April 1962).

47. U. S. Department of Commerce, Bureau of the Census, Survey of the Origin of Exports of Manufactured Products 1963 (Washington, D. C.: Bureau of the Census, June 2, 1965).

This is a tabulation, for 1960 and 1963, of the value of exports of manufactures by state by major industry group. The data are based on a survey of plants employing more than 100 workers and exporting more than $25,000 per year in 1963. The surveyed firms accounted for about 70 per cent of total U.S. exports of manufacturers. New England exports of manufactures in 1963 totaled $1,092 million, over half of which originated in Massachusetts. Of the twenty 2-digit SIC categories only "machinery, except electrical," "transportation equipment," "electrical machinery," "miscellaneous manufactures," and "instruments and related products," exceeded $50 million in exports.

48. "What Are New England's Exports," New England Business Review (December 1959). See item 2 in the Appendix to this Task Force report.

49. Warren Waite, "Indexes of the Terms of Trade Between Areas in the United States," Review of Economic Statistics (February 1942), 22-30.

For each of nine census regions, including New England, for the period 1895 through 1939, the study gives the indexes of prices of goods sold and the terms of trade between a given region and the remainder of the United States. The data are on an annual basis. Waite finds that the average change in the terms of trade of New England is significantly less than the average change in the terms of trade, on a year to year basis, for any of the other nine census regions--suggesting more stable prices for goods both bought and sold in New England than for any other region.

III. Local and Micro-Adjustment Studies

50. David J. Ashton, New England Manufactures and European Investments, Research Report to Federal Reserve Bank of Boston No. 23 (Boston: Federal Reserve Bank of Boston, 1963).

This is a survey effort to determine the reasons why New England manufacturing firms might invest in Western Europe. He finds that size helps to determine the kind of foreign investment media adopted and that older firms are more prone to invest abroad than younger ones. There is no attempt to estimate the volume of foreign investment undertaken by New England firms.

51. Battelle Memorial Institute, Final Report on Geographical Origins of United States Exports to Canada (Columbus, Ohio: Battelle Memorial Institute, April 26, 1956).

This report is useful solely because of its Appendix F which lists products exported to Canada by city of origination. The data are based on questionnaires covering firms exporting 27.6 per cent of the dollar value of exports to Canada in 1954. Springfield, Massachusetts was one of four cities selected for particular emphasis. Possibly the Institute has the raw data from the Springfield questionnaire.

52. Helen M. Hunter, "United States International Trade in Wood Pulp: A Case Study in International Trade," Harvard Ph.D. dissertation (1952). Not available.

53. International Marketing Institute, Export Survey of the Greater Hartford Area (Cambridge, Mass.: privately circulated, 1965). Not available.

54. International Marketing Institute, Worcester, Massachusetts: A Design for a Locally Oriented Export Expansion Program (Cambridge, Mass.: privately circulated, 1965).

This is a survey based on questionnaires about the export "climate" of Worcester. It includes data on the dollar volume of exports by firm size (employment measure). It shows a positive relation of dollar volume to size, and of number of firms exporting to firm size.

55. National Planning Association, Local Economic Activity and Foreign Trade, Special Report No. 48 (Washington: 1958). Not available.

Description of community and locality efforts to adjust to international competition by expanding domestic and foreign markets. Also, contains suggestions for trade expansion program by firms and industries.

56. National Planning Association, Local Impact of Foreign Trade (Washington: National Planning Association, 1961).

Description of community and locality efforts to adjust to international competition by expanding domestic and foreign markets. Also, contains suggestions for trade expansion program by firms and industries.

IV. Primary Statistical Materials

57. U. S. Department of the Army, Office of the Chief of Engineers, Commercial Statistics, Water-borne Commerce of the United States, Part 2 of the Annual Report of the Chief of Engineers.

58. U. S. Department of the Army, Corps of Engineers, Annual Reports.

59. U. S. Department of the Army, Corps of Engineers, Water-Borne Commerce of the United States.

60. U. S. Bureau of the Census, Quarterly Summary of Foreign Commerce of the United States.

61. U. S. Bureau of the Census, United States Foreign Trade, Trade by Customs District, FT970 (monthly).

62. U. S. Bureau of the Census, Waterborne Trade by United States Ports, FT972 (monthly).

63. U. S. Bureau of the Census, Waterborne Foreign Trade Statistics, FT985 (monthly).

64. U. S. Department of Commerce, Export Origin Study, State of Vermont (February 1962).
ds . . . State of Rhode Island (February 1962).
. . . State of New Hampshire (February 1962).
. . . State of Connecticut (February 1962).
. . . State of Maine (February 1962).
. . . State of Massachusetts (February 1962).

65. U. S. Bureau of Foreign and Domestic Commerce, Commercial Structure of New England, Pt. II of the Commercial Survey of New England, Charles E. Artman, in charge, Domestic Commerce Series No. 26 (Washington: U. S. Government Printing Office, December 1929).

66. U. S. Bureau of Foreign and Domestic Commerce, Industrial Structure of New England, Pt. III of the Commercial Survey of New England, Domestic Commerce Series No. 28 (Washington: U. S. Government Printing Office, April 1930).

67. U. S. Bureau of Foreign and Domestic Commerce, Market Data Handbook of New England, Pt. I of the Commercial Survey of New England, Domestic Commerce Series No. 24 (Washington: U. S. Government Printing Office, April 1929).

68. U. S. Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Carload Waybill Statistics, State-to-State Distribution of Animals and Products.
. . . of Manufactures and Miscellaneous and Forwarder Traffic.
. . . of Products of Agriculture.
. . . of Products of Forests.
. . . of Products of Mines.

69. U. S. Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Freight Revenue and Wholesale Value at Destination of Commodities Transported on Class I Steam Railways in the United States.

70. U. S. Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Motor Carrier Freight Commodity Statistics, Class I Common and Contract Carriers of Property for the Year Ended December 31, 1956, Statement No. 5718 (Washington: Government Printing Office, 1957).

71. U. S. Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Transport Statistics in the United States, Year Ended December 31.

72. U. S. Department of Labor, Bureau of Labor Statistics, Domestic Employment Attributable to U. S. Exports, 1960 (January 1962).

73. U. S. Senate, Committee on Interstate and Foreign Commerce, 87th Congress, 1st Session, The United States and World Trade: Challenges and Opportunities (1961).

74. U. S. Department of State, Connecticut and Foreign Trade (Washington: U. S. Department of State, 1951).

75. U. S. Department of State, Massachusetts and Foreign Trade 1951 (Washington: 1951).

76. U. S. Department of State, Rhode Island and Foreign Trade (Washington: 1952).

V. Management Advice and Directories

77. Lester A. Neidell, Comparative Export Practices of Small Firms in the United States and Scandinavia: Research Report to the Federal Reserve Bank of Boston No. 29 (1965).

This study is valuable primarily as a document summarizing other documents on the export practices of New England firms. The major findings are that export practices of good performers and poor performers within New England do not vary significantly but as between exporters in New England and Scandinavia export practices are significantly different. The findings are based on questionnaires and include results for the paint, paper, pump, and tool industries. It briefly develops a marketing strategy for firms wishing to increase sales of exports.

78. Committee on Foreign Trade of the Boston Chamber of Commerce, The New England Exporter (by Harry R. Tosdal) (Boston: Boston Chamber of Commerce, 1922).

A "cookbook" treatment of the techniques of expediting exports, mainly concerned with merchandising and promotion. Page 13 gives the dollar value of exports, by commodity, for 1917-1920, with total exports through the Port of Boston of $207.6 million, $221.3 million, $334.4 million, and $192.8 million for the respective years; page 96 gives dollar value of imports for the same years: $228.5 million, $295.0 million, $273.0 million, and $391.8 million respectively.

79. Connecticut Development Commission, Business and Industrial Development Division, Directory of Connecticut Products for Export (October 1965).

This directory lists a large number of products which are exported by Connecticut manufacturing firms. The products are listed alphabetically and are cross-indexed by firms manufacturing the listed products, together with their addresses.

80. International Marketing Institute, BLU-TRADE: The Export Action Program in Boston (by Ernest J. Enright and Alexander O. Stanley) (Cambridge, Mass.: International Marketing Institute, 1964) mimeo.

This is a compilation of ideas and documents to aid business firms in locating and exploiting foreign markets.

81. International Marketing Institute, Export Marketing for Smaller Firms (Washington Small Business Administration) (May 1963).

This study outlines for small enterprises, the sequence of steps necessary to determine whether and how to utilize foreign markets as sources of future profits. It describes the problems facing smaller firms engaged in, or seeking, foreign trade and it notes the types of assistance available to them.

82. Greater Boston Chamber of Commerce, Greater Boston World Trade Directory, 1961-62 edition (Boston: Greater Boston Chamber of Commerce, n.d.).

This is a directory listing, alphabetically, exporters and importers; importers and exporters by major standard industrial classification groups and by country with which they are doing business. It also lists Boston banks with "foreign" departments and lists consular offices in Boston.

(Notes taken from several items, with emphasis on empirical information.)

1. "Foreign Trade and the New England Region," New England Business Review (August 1956). (30 in Bibliography).

   This article discusses the limitations, for studying regional international trade patterns, of existing government forms for reporting exports and imports. These require the kind of merchandise, value, and weight, where it is going, and by what route (for exports), but no indication of their origin in U. S., nor are there data on import destination except in both cases, importer and exporter address is listed.

   This was a small pilot study of May 1955 foreign trade transactions for U. S. with extra sample size for New England. The question arises whether the exporter and importer addresses are trustworthy indicators of origin and destination. The study found for New England that imports in May 1955 by address on documents totalled $534.4 million of which $16.9 million turned out to be not truly part of New England imports. On the other hand, from documents not carrying a New England address, the sample and questionnaire revealed $23.9 million imports with New England destination. Hence, total imports were $60.4 million. On the export side, the address on the documents showed exports of $24.5 million with New England origin and another $5.6 million with New England "origin" that really originated elsewhere. But the study found $15.9 million of exports originated in New England that were accounted for by non-New England addresses. Total exports were $40.4 million in May 1955.

   Documents carrying a New England address, but proving to misrepresent origin or destination, were comparatively small in total value. Those belonging to New England despite non-New England address bulked much larger. No single factor seemed to account for the clash between address and true origins or destination.

   According to the sample, New England ran a considerable import surplus of approximately the same magnitude whether measured by document address or by revealed origin or destination.

2. "What Are New England's Exports?" New England Business Review (December 1959). (48 in Bibliography).

   The data for this study were based on Boston Federal Reserve Bank survey of manufacturing plants in New England. The study sought to establish dollar volume of plants' exports, if any, in 1954, 1957, and 1958.

   Of 356 respondents, 185 engaged in direct exports in one or more of these years. This does not include indirect exports, which could not be revealed by the survey. These direct exports equaled $86 million in 1958, compared to $102 million in 1957, a 15% drop which is consistent with national experience. But one cannot estimate total export sales from this sample.

Composition of exports: Biggest exports of manufacturers was machinery and equipment, with special individual machinery being 20.8% of the group. There is high concentration of exports: 12 of the total of 149 U.S. manufacturing industry groups, accounted in New England for 80% of the exports reported in survey. These twelve fall into the broad categories: electrical and non-electrical machinery, fabricated metals, instruments, transportation equipment, and leather products.

Generally, newer industries are the dominant exporters. Only 2 of top 12--shipbuilding and leather tanning--are among New England's historic industries and these each account for less than 4% of surveyed exports.

The larger firms tend to be exporters. Indeed, no plant whose annual sales of less than $100,000 was an exporter, whereas 93% of firms in $1-5 million sales category exported. Conclude that size is more important than independent group affiliation in influencing export practice.

No observed tendency for firms to move in and out of export business. 90% of the plants exporting did so in each of the 3 years--and this may understate the consistency.

Since survey was only sent to firms in industries which, at national level, do export, it may be surprising that only 52% of the responding firms are exporters. This seems particularly low in view of the fact that exporting firms are particularly likely to be respondents.

In general, New England's leading industries are not among nation's leading export industries. Major exceptions are aircraft and special machinery industries. Two of leading U.S. export industries, petroleum and farm machinery, have no New England plants.

Top manufactured goods industries in New England are not necessarily the region's major exporters. Of major 10 industries in New England (measured by value of output), 6 are in top 10 industries in terms of regional exporting. Special industrial machinery is way in front as an exporter, yet ranks only 7th in terms of New England industry. Electrical equipment, New England's third industry, ranked 43rd as an exporter. Footwear was New England's fourth industry and ranked 22nd. These data suggest that the usual procedure of estimating regional exports by taking that proportion of total U.S. exports which is represented by ratio of regional value of output in national industry's value of output is inadmissible. Thus, a new technique must be found.

	Export rank	Output rank
Special industrial machinery	1	7
Scientific measuring equipment	2	32
Hardware and hand tools	3	8
Metal working machinery	4	2
Service industry machinery	5	21
Communications equipment	6	5
General machinery, non-electrical	7	9
Ship and boat building	8	25
Aircraft and parts	9	1
Leather tanning	10	37

3. "The Port of Boston: 1957," New England Business Review (July 1957). (38 in Bibliography)

The thirty year trend (1924-54) in import tonnages (annual rate of change) for Boston is -2.26%. The trend for export tonnages is 1.31%. These figures exclude from import totals petroleum tonnages and from export totals coke and coal. Thus percentages are derived from general cargo traffic. In postwar period (to 1954), import tonnages have been growing slightly and exports tending to decline.

During early 1900's, Boston's exports approximated imports in value, and probably in volume. The ratio began to drop well before World War I, as a result of absolute fall in exports. By the early 1920's, Boston was sending abroad only one ton for every 8 imported (a ratio which, however, had been influenced by an increase in petroleum imports). The flow of grain, cereals and meat which left from Boston's piers simply dried up--as U. S. comparative advantage shifted; it was not shifted to other ports. Boston failed to share in the new export business in manufactured goods.

Coastal shipping trade also declined in the 1930's and did not revive after the World War II interruption of service. This business was lost to rail and highway carriers. There is still a reasonable tonnage in coastal bulk cargo movements, but this has not compensated (in terms of profits) for loss of general cargo business.

In 1920, 75% of Boston tonnage was coastwise.

In 1955, incoming cargoes at Boston exceeded outgoing by about 3 tons to 1, even after subtraction of a very heavy volume of inbound fuel tonnage. Reason listed for this disparity is that Boston is typically a "first call" port for inbound freight (to reach Midwest quickly) but not "last-port" call for any given ship. "First calls" tend to be unloaded of goods imported; last-calls are load of goods exported. Still since comparatively little tonnage moves to Midwest via Boston, Boston seems to have failed to fully exploit its first-port-of-call position.

4. National Planning Association, Committee of New England, New England's Trade with the Rest of the United States and with Foreign Countries, Staff Memorandum No. 12 (February 1953). (35 in Bibliography).

This report is based on a special tabulation prepared for the Committee by the Foreign Trade Division of the Bureau of the Census. The tabulation listed all foreign imports and exports for 1949 through individual New England customs districts, by commodities, by country or area of origination or termination.

Conclusions on rail and water trade:

1) New England received by rail and water about 62.8 million tons of goods (about 2/3 of which was fuel) and shipped out 11.3 million tons.

2) Receipts from rest of U.S. constituted about 90% of the weight of the total receipts, and about 50% of the tonnage came by coastwise shipping, primarily via Boston, Portland and Providence.

3) Imports from abroad totaled 8 million tons, of which 2.9 million (35%) came from Canada. Approximately 50% of imports from abroad were fuel.

4) 90% of weight of New England exports were to the rest of the U.S., though some were eventually sent abroad via the Port of New York and other non-New England ports.

5) Approximately 1 million tons of goods were exported directly from New England to foreigners. Roughly 60% of that total went to Canada.

6) The value of foreign merchandise which entered New England was about $539 million, and the value of shipments out of New England for foreign destinations was $196 million.

Truck shipments data were not available, but the Boston Federal Reserve Bank study of 1950 indicates it was considerable. In 1950, 29% of New England interregional shipments in each direction were by truck. Most inbound trucking was of fuel. Using these percentages as rough adjustments, it estimated approximately 85,000,000 tons of goods came into New England in 1949, and about 16,000,000 tons left region. The totals do not include air shipments, except for Canada, or figures for certain other minor types of shipments. Omitted categories are relatively small tonnages. In 1950, e.g., about 30,000 tons of air freight left New England and only 20,000 tons came into the region.

5. New England Governors' Committee on Public Transportation, The St. Lawrence Seaway and New England (including a research study by Sargent Russell), (1956).

Most freight handled by New England transportation systems originates and terminates in the region. The volume of through-freight, which might be diverted to the St. Lawrence Seaway, is not large. In this sense, there is not a great deal to lose from the Seaway. But the New England ports may lose some marginal opportunities to obtain traffic they had hoped to get, and loss of even small quantities of freight would be painful when traffic volume is already unsatisfactory.

With the possibility of establishing new sugar refining capacity in the Great Lakes Region, New England may lose some of its interior market for sugar and candy. Foreign wood pulp now brought through, e.g., Portland, may be diverted, as could some portion of the hard fibers now processed in New England.

New England ports are "overflow" ports for grain coming from the Midwest and Canada. An expansion in flows over Seaway, during ice-free months, is to be expected. Drying up of grain flows is a concern, since grain is a "bottom cargo" whose presence is an inducement for ships to call at New England ports.

Somewhere between 50,000 and 100,000 tons of import cargo may be diverted.

6. S. E. Harris, The Economics of New England: Case Study of an Older Area (Cambridge, Mass.: Harvard University Press, 1952). Pp. 17-19.

New England exports about $3 billion of manufactured goods (value added basis), or more than 20% of region's income. (Estimate is exports equal output minus an estimated consumption in New England.) To feed itself and import raw materials, New England pays primarily with manufactured goods exports.

Of the $3 billion, roughly 1/3 goes abroad, so that regional trade is more important than foreign; but perhaps the intensification of competition in interregional trade suggests international trade as a way out. Thus, perhaps the quadrupling of U. S. exports during 1947-50 (over late prewar years), in which New England shared, was windfall to New England--offering substitute markets.

Data suggest New England is more dependent than "average" on export trade (as a percent of income). This suggests that New England should push for free trade, rather than finding manufacturers clamoring for protection. Major competition is domestic, not foreign; and tariffs do not provide shelter there. Gain of export trade for New England manufacturers would more than balance loss of interregional markets associated with free entry from abroad.

New England's stake in declining industries is large. Two of these (textiles and shoes, leather and leather products) sell outside of New England

75% of their output. This accounts for $1.5 billion of exports, roughly 1/2 of New England exports--an amount equal to 1/4 of its manufactured output. These industries must export to survive.

The area can pay for large import surplus with dollars received on interest and profits of past investment elsewhere and in part on service exports--insurance, tourist, and education--and by inflow of funds via investment trusts.

7. U.S. Department of Commerce, Export Origin Study (February 1962).

   a. Vermont

      Exports of manufactured goods equal $28.1 million (1960) with about 1/3 (11,000) of state's workers in 24 firms exporting $25,000 or more. Major industries are non-elect machinery; food and kindred products, electrical machinery; stone, clay and glass products. Agricultural exports equal $4.8 million in 1960-61 crop year, mainly livestock and livestock products, and field crops. These agricultural exports embodied the labor of 2,100 Vermont farm workers.

   b. Rhode Island

      Exports of manufactured goods equal $65.9 million (1960), with 63 establishments exporting more than $25,000. These firms employed 1/4 (or 28,000) of state's workers. Major commodities are textile mill products, non-electrical machinery, miscellaneous manufacturing, rubber and plastic products, etc. Agricultural exports equal $1.6 million (1960-61 crop year): $1.1 million of field crops. These embodied 200 farm workers.

   c. New Hampshire

      Exports manufactured goods equal $54.7 million (1960), with 39 establishments exporting more than $25,000. These employed 18,000, or 18/78, of state's workers. Major products: non-electrical machinery, primary metals, textile mill products, paper and allied products, leather and leather products, electrical machinery. Agricultural exports equal $2.7 million (1960-61 crop year): mainly livestock and livestock products, field crops and fruits and nuts. 500 farm workers were employed in producing these exports.

   d. Connecticut

      Exports manufactured goods equal $385.9 million (1960) with 250 establishments exporting more than $25,000 and employing 214,000 workers or 6/10 of the workers in Connecticut. Major commodities: transportation equipment, non-electrical machinery, electrical machinery, instruments and related products, fabricated metal products, chemistry and related products. Agricultural exports equal $11.5 million (1960-61); mostly field crops and livestock and livestock products. About 1,900 farm workers were embodied in these exports.

e. Maine

Manufactured goods exports equal $37.5 million (1960) from 26 establishments exporting more than $25,000 and employing 16.3 thousand Maine workers out of 97.7 thousand. Major commodities: paper and allied products, food and kindred products, non-electrical machinery, leather and leather products, textile mill products, lumber and wood products. Agricultural exports equal $25.6 million (1960-61). 1,500 Maine farm workers were embodied.

f. Massachusetts

Exports of manufactures equal $435.2 million (1960) with 319 establishments exporting more than $25,000 and employing 204.5 thousand out of 658.5 thousand workers. Major commodities: non-electrical machinery, electrical machinery, instruments and related products, textile mill products, chemistry and allied products, rubber and plastic products, fabricated metal. Agricultural exports equal $9.9 million (1960-61), mainly field crops, livestock and livestock products, and fruits and nuts. 1,600 farm workers were embodied in these exports.

8. U.S. Department of State, Connecticut and Foreign Trade (1951).

Based on a survey by Connecticut Development Commission. 552 Connecticut manufacturers responded that they exported goods equal to $144,326,000 in 1947 and $139,899,000 in 1948.

Leading industries were machinery, including electrical (in 1947), $67 million; iron and steel products, $9.7 million; textile mill products, $3.2 million; chemicals, $2.9 million; rubber products, $1.9 million. Others with direct exports included stone, clay and glass products, apparel, paper and paper products, furniture, lumber and timber products, printing and publishing products, foods, leather and leather products.

More than 192,000 Connecticut workers, earning in excess of $547 million, were employed in 12 industries for which U.S. exports surpassed imports in that product class. In Connecticut these industries had value added in 1947 in excess of $892 million. Total U.S. exports of these products were equal to $2.1 million in 1947. The products were: electrical machinery, cutlery and hand tools, copper rolling and drawings, ball and roller bearings, metal working machinery, apparel, aircraft engines, typewriters, rubber products, cotton and rayon fabrics, silver- and plate-ware, needles, pins and fasteners. Export values were given for these.

Other "export basis" industries in 1947 employ 41,000 Connecticut workers, who earn $92 million, and had value added equaling $151.5 million. In U.S. these valued at $271.5 million in 1947. Thus, these are more concentrated in Connecticut than above list and include mechanical measuring instruments, small arms and ammunition, toys and sporting goods, iron and steel foundry products, metal plumbing fixtures, yarn and thread, and others.

Almost every major industry in Connecticut is dependent on imports for some essential raw materials. Principal large industries, so dependent, employing 306,719 Connecticut workers in 1947, are machinery (including electric), fabricated metal products, transportation equipment, nonferrous metal rolling and drawing, printing and publishing, and watches and clocks (all employing in excess of 10,000 per industry), plus a number of other industries of smaller employment.

9. U.S. Department of State, Massachusetts and Foreign Trade (1951).

In 1947 more than 355,000 Massachusetts workers, or greater than 49% of industrial workers, were employed by industries whose products were not exported by the U.S. Almost 20,000 Massachusetts workers were employed in primary metal industries, whose products are widely used in the manufacture of export goods such as fabricated metal products and machinery.

In the 12 leading Massachusetts industries producing goods for which U.S. exports exceeded imports were more than 300,000 workers, earning almost $767,000,000, with value added in manufacture of $2.4 billion in 1947. These are electrical machinery, textiles and related products, footwear, cotton broadwoven fabrics, rubber products, and textile machinery, each with employment in excess of 20,000. In addition are metalworking machinery, cutlery and tools, leather tanning, rayon, and confectionery and related products. U.S. exports of these 12 industries equalled $2.45 million in 1947. On plausible assumptions Massachusetts would have exported at least $180 million of these goods annually.

Principal Massachusetts industries dependent on imports employed 479,000 workers, earning more than $7 million in wages and salaries, with value added in excess of $2 billion. Those industries employing more than 10,000 each are: machinery (including electrical), fabricated metal products, primary metal products, transportation equipment, leather and leather goods, woolen and worsted fabrics, paper and allied products, printing and publishing, and rubber products.

10. U. S. Department of State, Rhode Island and Foreign Trade (1952).

No exact figures for Rhode Island. But in 1947 more than 89, 000 workers, or 60% of Rhode Island workers in manufacturing were employed in major industries producing goods which U. S. exports exceed imports. These industries include textile mill products with 29, 888 employment, $75, 508, 000 in wage and salaries, and $133, 815, 000 in value added; jewelry and silverware with 19, 011 employment, $45, 001, 000 in wages and salaries and $84, 087, 000 in value added; machine tools and other metal-working machinery; rubber products; electrical equipment; textile machinery; apparel and related products. These named industries employed nearly 76, 000, earning $187 million, with value added in manufacture of $328 million. Total U. S. exports of products of these industries equalled $2. 1 billion in 1947.

Principal large "import" industries, employing 102, 000 Rhode Island workers, earning $255 million in wage and salaries, with total value added in manufacture of $445 million include: woolen and worsted manufacturers, machinery (except electrical), fabricated metal products, primary metal products, electrical machinery, jewelry and silverware, costume jewelry, rubber products, rayon and related fabric, and others. Those named employed at least 75, 000 each in 1947.

TASK FORCE REPORT D

Review of Planning and Economic Research on Public Transportation in New England

MARTIN L. LINDAHL

SECTION I EVALUATION

I. Major Studies of New England's Transportation System

A. Storrow Committee Report

The Report of the Joint New England Railroad Committee to the Governors of the New England States entitled "Rehabilitation by Cooperation - A Railroad Policy for New England" (1.) was issued in June, 1923. This report, commonly known as the Storrow Committee Report since James J. Storrow of Massachusetts was chairman of the Committee, emanated from the first of three investigations of New England's transportation problems undertaken by committees of citizens appointed by the Governors of the six New England states during the 35-year period between 1922 and 1957. The initial motivation for launching the investigation was to consider the attitude which New England should take with respect to railroad consolidation. This issue was in the forefront of public discussion owing to the preliminary moves being made by the Interstate Commerce Commission in discharging its congressional mandate to draw up a comprehensive plan for the consolidation of the railroads into a limited number of systems. In order to reach a sound conclusion concerning the consolidation proposal which would best serve the future economic interests of New England, however, it was believed necessary to make an intensive study of the entire transportation system of the region. Accordingly, attention was given to ocean transportation, sea and rail routes, rail and inland water routes, truck transportation, differential routes and rates, and interchange of traffic between New England carriers and outside connections. The railways themselves were subjected to a scrutiny of the physical condition of their plant and equipment, of their operating results and financial condition, of the need for additional investment, and of the effectiveness of their present management.

The scope and emphasis of the findings and conclusions reflect the depressed general business situation and the poor financial condition of the carriers in the period under review. The year 1921 was one of acute business depression and 1922 was marred by a strike of railway shopmen and strikes in the textile and coal industries. Prime importance was attached to the prompt financial rehabilitation of the major railroad systems if they were to make their potentially large contribution to the industrial development of the region. In the course of the analysis, attention was also drawn to the adverse characteristics of railway operation in the region. Among them were the unbalanced movement of traffic (five loaded cars entered New England for every two that were shipped out), the low density of traffic, the low average daily movement of freight cars, large per diem payments, the high percentage of less than carload shipments, congestion owing to faulty embargo practices, and a relatively high percentage of passenger traffic which included a heavy low fare and costly suburban passenger business.

The findings, conclusions, and recommendations of the Committee may be summarized under a number of headings.

1. Coordination of Water and Rail Transportation: While the emphasis in the report was upon rail transport, the Committee was fully cognizant of the current and future potential of water transport. Owing to New England's situation in the northeast corner of the country and the consequent long in-and-out haul by railroad (at rates which had practically doubled since 1913) and because 75 per cent of industrial enterprises were located at or close to the coast line with its many large and small harbors, "it is vital to New England's future welfare that a close, friendly, and harmonious cooperation should prevail at all times between our rail and water transportation." (1, p. 248). Coordination of rail and water transport was needed not only to facilitate foreign exports and imports, but to secure fuel and basic raw materials from other sections of the United States and to ship manufactures in exchange. Manufacturers were encouraged to take advantage of water rates to Pacific Coast points on such products as shoes, textiles, tires, and pianos, which were considerably lower than westbound rail rates from Detroit and Chicago. Found significant was the fact that total tonnage moving in and out of New England ports in 1921 was 26, 158, 573 tons compared with 31, 500, 000 tons of all-rail freight moving through rail gateways in the year ending June 30, 1922. (1, p. 15).

Among the needs noted by the Committee in order to build up the business of the New England ports as well as railway traffic were (1) the attraction of bulk cargo, especially grain from the Middle West via the Great Lakes-Rutland-Boston & Maine route, to the port of Boston; (2) the elimination of the lower railway rates for export grain that favored Baltimore and Philadelphia; and (3) the modernization of Boston port facilities.

Proper development of the port of Boston, in the judgment of the Committee, required "one general unified terminal control." (1, p. 145). It was recommended that a board of terminal trustees be established with authority, backed by state credit, to acquire and operate all terminal properties. All railroad property within a certain radius from the center of the city, including the four separate antiquated freight yards of the Boston & Maine, should be acquired. A proposed plan for the physical development of the port embraced such ingenious and far-reaching suggestions as filling in between and to the outer edge of the old-fashioned piers along the front of the city and bulkheading to provide a wharf for ships to come alongside. A railroad would then be constructed, partly on the new land created by the fill, encircling the entire port of Boston. On an elevated structure above the rail line could be constructed a roadway to accommodate motor vehicles serving the port. Coupled with warehouses and elevators, these and ancillary facilities would permit an effective integration of land and water carriage.

2. Motor Transportation: Noting that the motor truck had gained great importance in New England transportation since the war, that highway expenditures had increased greatly, and that nominal registration fees and gasoline taxes were levied on the heavier trucks, the Committee concluded that the "railroads are subject to what amounts to state subsidized truck competition." The playing of favorites was deplored. "We are speaking harshly to our oldest born, on whom we are really dependent, and at the same time lavishing caresses on our youngest born, whose push can hardly take the family carriage out of the door yard." (1, p. 133).

3. Differential Routes and Rates: The Committee strongly supported the retention of the differential routes and rates on westbound traffic from New England. One of these was the differential route by water and rail to the west and the southwest through Baltimore or Savannah at rates lower than on all-rail standard routes. But most important to New England shippers were the Canadian differential routes. The Canadian Pacific could be reached by the Boston & Maine at Newport, Vermont and could accommodate traffic from eastern and northern New England points. The Canadian National route, which embraced the wholly-owned Central Vermont, was available to shippers in eastern and southern New England either directly or through connecting lines. Through the Atlantic & St. Lawrence, the Canadian National also maintained westbound differential rates from all points in Maine which were of particular value to shippers of newsprint. The Canadian differential routes were highly regarded because of the high quality of service as well as the lower rates. They were not overly circuitous; the Canadian National route from Boston to Chicago was only about 10 per cent longer than the shortest alternative American Route and actually shorter than some of the others, and it avoided large terminals where traffic was heavy and congestion a frequent occurrence.

The preservation of the differential routes and rates was viewed as a major consideration in appraising consolidation proposals.

4. Condition of the Railways in the Region: Both of the major railroads in the region were found to be grossly deficient. While the physical condition of the New Haven was found to be very good, it was declared to be rendering "inadequate service" and its financial condition to be "unsatisfactory." (1, p. 250). The Boston & Maine was found to be "inadequately serving its territory" and in need of aid to strengthen its weak financial position. (1, p. 250). Its physical condition was "fair".

The smaller railroads, on the other hand, were found to be in good operating condition on the whole and rendering good to excellent service. They presented no crucial service, operating, or financial problems.

5. Rehabilitation of the New Haven and the Boston & Maine: Of first importance, believed the Committee, was the rehabilitation of the two major New England systems. Any consolidation plan would be "neither advisable nor equitably possible" until each carrier had demonstrated its financial and operating capabilities under normal conditions and with restored credit. (1, p. 207). Rehabilitation by the cooperation of all the parties involved should be the key objective. Each party was assigned a role.

In the case of the New Haven, stockholders were expected to buy an additional $15 millions in common stock and bondholders to exchange $76 millions of bonds for preferred shares. The Federal Government was to be asked to reduce interest charges on New Haven's government war loan. Shippers were to cooperate by a reduction in the free time for loading or unloading freight cars from two days to one day. But the most significant role as regards assistance and also control was assigned to the states of Massachusetts, Connecticut, and Rhode Island. They were to create a board of trustees for ten years "to control the New Haven Company and its operations and finances." (1, p. 253).

They were also to undertake to refund local taxes in amounts sufficient to cover fixed charges in years when not fully earned by the New Haven. Another suggested form of financial aid was the guaranty of principal and interest on bonds issued by the state trustees for funds to repay maturing bonds and for additions and improvements.

The prescription for the rehabilitation of the Boston & Maine was a close replica of the New Haven plan. Having been reorganized in 1919 with some reduction in fixed charges, bondholders were asked to extend the life for twelve years of maturing bonds rather than convert their bonds to preferred stock. Little new equity capital could be raised, after counting out the stock holdings of the New Haven, so no sale of common stock to existing stockholders was suggested. But the states of Massachusetts, Maine, New Hampshire, and Vermont were to assert undivided control through a board of state trustees for a ten year period and were to give aid in the form of tax remission and a guaranty of new bonds.

The Committee acknowledged that it might be regarded as a "bold step" to use state credit to restore the financial health of railroads, but it found justification in the gravity of the transportation situation and ample historical precedents in the state and local aid accorded the early New England railroads. (1, pp. 231-4).

6. Consolidation: The Committee recommended for the present that there should be no consolidation either of the New England railroads among themselves or between any of them and any of the trunk lines. This attitude was based on the view, already noted, that rehabilitation of the major carriers should be the first order of business and quite necessary in order to work out equitable merger terms and conditions. Little or no examination of prospective economies from consolidation had been made, so merger savings apparently were not considered to be a possible contributory factor toward rehabilitation.

If consolidation were to be undertaken in the future, the Committee, with New Hampshire dissenting, favored the creation of a New England system, including the Rutland and the New York, Ontario & Western. Inclusion of the latter roads would give New England, in the language of the Committee, the advantage of a "window on the Great Lakes." (1, p. 252). The Boston & Albany would remain, however, as a part of the New York Central system and the Central Vermont and the Atlantic & St. Lawrence as parts of the Canadian National system. Ownership of the mileage of the Canadian Pacific in Maine and Vermont would also remain intact. The advantages of a New England system, while not well articulated in the report, seemed to stem largely from the benefits to be derived from a New-England-based management that had knowledge of regional conditions and an incentive to meet effectively the needs of shippers in the region. An undivided interest in the development of New England's ports would be assured under such a management. The regional system would have compared favorably with other railroad systems in terms of mileage, revenues, and volume of traffic, hence it was inferred that available economies of scale would have been realized. The retention of competition among railroads within New England was regarded as of secondary importance. It was acknowledged that competition between the New Haven and the Boston & Maine at the common points in Massachusetts such as Boston, Worcester, and Springfield would be eliminated, but it was pointed out that these centers would continue to be served by the "strong and efficient" New York Central. Most importantly, shippers and the regional railroad itself would have a choice of routing among the trunk lines at the various New England gateways. Competition for New England's traffic by the American and Canadian trunk lines, it was argued, would yield better service, lower rates, and perhaps a larger division of the joint rates on through traffic.

If trunk line consolidation should be made compulsory, the Committee favored the consolidation of the Boston & Maine, the Maine Central, and the Bangor & Aroostock with the New York Central and the New Haven with the Pennsylvania.

But the Committee, with the exception of New Hampshire, opposed mergers with the trunk lines. Any financial advantage that would be gained from affiliation with the larger and stronger roads would be more than offset by the shifting of control to Philadelphia and New York. Trunk line ownership would substantially eliminate competition among the trunk lines for New England's westbound business with the loss of incentive for good service. The Canadian differential rates would be imperilled as might be the ocean water routes if the trunk lines set out to obtain the long haul by rail. Finally, the public was reminded that the New Haven was controlled by outsiders when the unfortunate chapters in its history were being written and that there had been a time when the Boston & Albany was rendering the worst service in New England.

The Maine committee members, it should be noted, agreed with the Committee on its choice of consolidation plans but expressed the view that any consolidation plan would affect the interests of Maine adversely.

In concluding this review of the Storrow Committee Report, it may be observed that such matters as the retention of the Canadian differential routes and the development of New England ports and ocean transport are still matters of public concern. They are factors to be taken into account in relation to the current trend toward trunk line affiliations. The thoughts of the Storrow Committee with regard to rehabilitation may even be worthy of consideration in relieving the current plight of the New Haven.

B. Spaulding Committee Report

The second report by a group of New England citizens was issued in May, 1931. It was entitled "Report of the New England Railroad Committee to the Governors of the New England States." (2.) Since Rolland H. Spaulding of New Hampshire was general chairman of the thirty-member Committee, which was permanently organized on January 3, 1930, the report will be referred to as the Spaulding Committee Report.

The emphasis of the report is suggested by the subtitle: "The New England Railroads - Recommendations for a Policy with respect to Consolidation and Ownership." Creation of the Committee was occasioned by the knowledge that the Pennsylvania Railroad and its investment affiliate, the Pennroad Corporation, had acquired substantial stock interests in the New Haven and the Boston & Maine. Pennsylvania and Pennroad held nearly 23 per cent of the voting power in the New Haven in 1933. The New Haven in turn held 28 per cent control in the Boston & Maine, a control in varying degrees which had existed since about 1907. This control plus the 18 per cent of voting stock held by Pennroad gave New Haven-Pennsylvania interests about 46 per cent control of the Boston & Maine. A further reason for the study was the publication by the Interstate Commerce Commission in late 1929 of its complete or final plan for railroad consolidation.

Several special research reports were prepared by experts and the results summarized in the body of the report. Among them was a study by Coverdale & Colpitts relating to the operations and prospective economies of a merger of the New Haven and the Boston & Maine. Professor William J. Cunningham of Harvard made special studies of the effect upon New England of the Four-Party consolidation plan for the trunk lines and of the Providence plan for consolidating the New England carriers with eastern trunk lines.

While some attention was paid to water transport and motor vehicle transportation, particularly the pioneer motor vehicle operations of the New Haven and the Boston & Maine, the background material related chiefly to the railroads. Presented were statistical data relating to such matters as traffic, operating performance, financial conditions, and interchange. Of particular value were the interchange data for each of the carriers, interchange at the various gateways, the relative importance of the trunk lines in the flow of traffic, and changes in gateway interchange between 1922 and 1929. Rehabilitation of the New Haven and the Boston & Maine had been achieved during the 1920's even without taking much of the potent medicine prescribed by the Storrow Committee. Their earning power was declared to have been restored, their credit was good, and their service was excellent. And all of this had been accomplished "under managements controlled by New England men and was financed largely with New England capital." (2, p. 19)

In laying standards for the appraisal of the various consolidation proposals, the Committee outlined the essentials of a transportation policy for New England. (2, pp. 101-2). Among the conventional transport objectives listed were fast and dependable service, lowest possible rates and costs of operation consistent with good service, good credit to insure improvements, cooperation between transport and industry, and coordination in rail-motor operations. More provincial were the need for management capable of meeting the operating problems of the region and responsive to local needs, the maintenance and development of the Canadian differential routes and rates, and port development in order to provide cheap water transport and greater export and import rail tonnage. The maintenance of the existing competitive gateways was emphasized in order to assure good service and a satisfactory division of joint rates. The only competition within New England deemed worthy of mention and support was that provided by the New York Central's control of the Boston & Albany and the Canadian lines.

The Committee considered nine separate proposals which had been advanced for the disposition of the New England roads in consolidation plans. (2, pp. 112-113). Set forth at length were the important considerations urged for and against each of the plans.

Conclusions and recommendations may be summarized under two headings: 1. Consolidation; 2. Ownership.

1. Consolidation: The Committee with Rhode Island dissenting, reached the conclusion that New England would be served best by a consolidation of the New Haven and the Boston & Maine. It was recommended that once these roads were freed from Pennsylvania excess ownership that steps be taken to formulate a plan for their consolidation. Consolidation of the two roads would yield important operating economies. Coverdale & Colpitts estimated the possible savings at $3,100,000. (2, pp. 172-3). Other advantages noted were pretty much those advanced by the Storrow Committee. It was found that competition between the two roads within New England was of "comparatively little importance" and that the competition of the various connecting trunk lines at the gateways would be "intensified." The development of waterborne commerce through the New England ports would be favorably affected and coordination of motor and rail service would be improved by the merger.

Any form of trunk line control, except for the Boston & Albany and the Canadian lines, was opposed. The Committee noted the "struggle for mastery among ambitious railroad giants" and warned New England against permitting its railroads "to become pawns in such a struggle." (2, p. 216). Rhode Island, however, opposed the merger of the New Haven and the Boston & Maine to form a "terminal railway system." Rhode Island's Committee argued forcefully for a trunk line consolidation plan in which the New Haven would be merged with the Pennsylvania and the Boston & Maine with the Chesapeake & Ohio-Nickel Plate. (2, pp. 259-284). It was urged that the day of local ownership and control of railways had long since passed and that the Pennsylvania had done much to restore the prosperity of the New Haven. Above all things, it was contended, New England, like other regions, needed to develop closer economic contact with distant centers of production and consumption. The railways were becoming agencies for the movement chiefly of long haul, through freight to and from distant centers, and affiliation of the New Haven with the Pennsylvania would be conducive to the achievement of this role in the transport system.

2. Ownership: The majority of the Committee recommended that the ownership of the Pennsylvania in the New Haven and the Boston & Maine be reduced to 10 per cent of the voting stock in each. Stock in excess of the 10 per cent should be placed in the hands of trustees and eventually sold to private investors. The hope was expressed that this would increase New England ownership. If negotiations failed to achieve the desired solution of the problem, it was proposed that legal action be instituted in connection with future consolidation proceedings involving the trunk lines before the Interstate Commerce Commission

For better or for worse, it may be observed in conclusion, the intercorporate relations which concerned the Spaulding Committee were dissipated by economic and legal forces. Owing to the New Haven's bankruptcy in 1935 and the subsequent reorganization in 1947, the Pennsylvania lost its control. Massachusetts forced the New Haven to divest itself of its interest in the Boston & Maine and the Pennsylvania eventually sold its Boston & Maine stock.

C. Report of the Committee of New England of the National Planning Association

The book entitled "The Economic State of New England," a Report of the Committee of New England of the National Planning Association (3.) published by arrangement with the New England Council by Yale University Press, New

Haven, 1954) contains two chapters relating to New England transportation. One is called "Freight Rates and New England's Competitive Position," drafted by William H. Miernyk under the direction of Arthur A. Bright, Jr. The second is entitled "The New England Transportation System and Its Use," drafted by Robert A. Nelson under the direction of George H. Ellis.

In the chapter on "Freight Rates and New England's Competitive Position" (3, chapter 12), Miernyk deals chiefly with railroad and motor carrier freight rates in New England but also gives brief attention to parcel post and ocean freight rates. In the section on railroad freight rates, the author traces the development of freight-rate regulation and describes the freight-rate system of the United States and that of New England. The emphasis is on the uniform freight classification and the unified class-rate system that became effective May 30, 1952, and the probable impact of the new rate structure on the New England economy. As a means of testing the proposition that the old rate system (prior to May 30, 1952) favored New England shippers over their competitors in other regions, the Committee of New England undertook to analyze point-to-point railroad charges for 26 products and commodities of special importance to the New England economy. While rail charges for only two products, namely, finished cotton piece goods and machinery, are set forth in the chapter, the detailed results for all 26 products are reported in Staff Memorandum No. 3, "Railroad Transportation Charges to New England and Competing Shippers," June 1952. The patterns for all 26 cases were quite similar, the rates studied were those in effect on May 15, 1952, and showed in general "that regardless of the interterritorial rate differentials, New England manufacturers rarely had a significant transportation-cost advantage over their competitors." (3, p. 454). On the contrary, it was found that New England was at a relative disadvantage in shipping most products to most markets outside the region. The freight-cost disadvantage stemmed largely from the region's geographical location in a corner of the country. The new system of rates, based largely on distance, would not affect all regional producers uniformly, it was found, but on balance the unfavorable effects would be considably greater than the favorable effects." (3, p. 456). While subscribing to the principle that rates should be "dependent largely upon weight, value, and distance," it was recommended that a sympathetic ear be given to instances where transportation conditions justified departures from this principle even though they might add to the complexity of the rate system. (3, pp. 457-8).

The recent decision to equalize export grain rates to all North Atlantic ports was applauded. A greater flow of export traffic through the ports of New England was foreseen. The hope was expressed that differential rates on other export and import traffic would be removed. If ocean rates were to remain equalized, thus denying the benefit of Boston's shorter distance to North European ports, there was no justification for making distance the basis for higher rail rates to Boston.

Motor freight rates by common carriers within New England and to and from the region were analyzed in some detail. Motor carrier rates within New England (the New England territory includes all territory lying east of the Hudson River and embraces New York City, Schenectady, Albany and even a part of New Jersey) are based largely on costs and each truck haul is expected to be compensatory. Interterritorial rates are based on a national freight classification and reflect in greater measure value of service considerations that the railways have traditionally adhered to. In general, truck rates within the New England territory were found to be higher per mile than rates in other regions and higher also than rates on shipments to and from New England. The explanation lay in higher trucking costs within the region, owing chiefly to the preponderance of short hauls. These rate level disparities, it was found, caused a competitive disadvantage to New England shippers especially in the New York market. While acknowledging that the regional rates might be fully justified by higher costs, it was suggested that the rate level could have been set so high as to protect inefficient trucking firms. (3, pp. 464-5). Their elimination and the expansion of the operations of the low-cost firms might achieve "economies of scale" and greater efficiency. At any rate, a complete reexamination of the motor freight-rate system was believed to be desirable. So far as the regulation of the rates of railroads and motor carriers was concerned, a plea was made for greater independence in pricing and encouragement of intermodal competition based on rates as well as service. (3, pp. 465-6).

In the chapter on "The New England Transportation System and Its Use" (chapter 13), Robert A. Nelson is concerned with the rising costs of transportation and the innovations in improved facilities, more efficient operations, and better regulation that offer opportunities for cost reductions. In his extensive treatment of transport facilities in New England he deals in turn with each of the basic modes of transport - rail, motor, water, air, and pipeline - describes the available facilities, comments on their performance, and offers recommendations for their better use.

The section on railroads devotes attention to each of the New England railroads and considers its geographical layout, traffic, operations, and financial position. Operations of the regional railroads as a group are also analyzed and data presented relating to length of haul, density of traffic, and various performance measures. The railroad situation, on the whole, was found to be satisfactory. Railroads were rendering more transportation service than before World War II and at least in modernizing their rolling stock were demonstrating a determination to keep pace with the rest of the economy. General recommendations for the revision of public regulatory policy included: one, greater recognition of the strong element of competition in the field of transportation and granting of more discretion to railroad management to adjust rates to changing economic conditions; and two, carriers should be given more latitude in matters of service abandonment and should not be required to render service at less than out-of-pocket cost.

The study of motor carrier transportation, especially its contribution to and relative position in the regional transport system, was greatly handicapped by the lack of statistics with respect to private carriers and those exempt from regulation. Even the statistical data with respect to regulated interstate carriers presented problems because motor carriers domiciled in New England and reporting as New England carriers operated outside of the region as well as within. Also, carriers domiciled elsewhere operated within the region. It was estimated, nevertheless, that motor carriers produced between 25 to 40 per cent of the intercity freight ton-miles in New England, including both intraregional and interregional shipments. (3, p. 475). This proportion was considerably higher than the 13 per cent estimated by the

Interstate Commerce Commission for 1952 for the nation as a whole. The disparity emphasized the importance of motor carriage to the region.

Despite the existence of strenuous competition, several factors were found to militate against maximum efficiency of operation. Among them were limitations on the expansion of the more efficient carriers, inflexibility of route patterns, and excessive atomization of the industry. They were attributable largely to faulty regulation. Among the conclusions and recommendations were a relaxation of federal regulation, chiefly as regards entry and expansion, and on the state level, greater uniformity of regulation among the states and greater coordination with federal control, the more accurate assessment of highway costs against direct users, cooperation in highway planning, and possible provision (in conjunction with municipalities) of public freight and passenger terminals.

The nature and extent of air service in the region were reviewed. Central and southern New England were found to be well served by scheduled air lines and foreign air service at Boston was declared to be excellent. Little was said about air service in northern New England. Recommendations concerning Federal policy included making Logan a truly "international" airport by permitting foreign carriers flying to New York to stop in Boston, and imposing greater self-sufficiency upon the air transport industry in return for some relaxation of controls that stifled the initiative of management. It was recommended that the states provide coordination and financial aid for the realistic development of local airports, and that airports be managed independently and required to achieve greater self-sufficiency.

Inland water transportation on river and lake and pipeline transportation were found to be relatively unimportant and facilities quite adequate for existing needs.

The facilities and traffic of the leading New England ports were reviewed. Bulk commodities such as coal, petroleum, and chemicals were found to constitute the preponderant share of the traffic and the facilities to accommodate these products were largely privately owned. Existing facilities at the ports were said to be adequate for the current volume of traffic. Any additional public construction at the ports should be deferred, it was advised, until the effects of the St. Lawrence Seaway and other developments could be determined.

The use of New England's transport facilities constitutes the final section of Nelson's chapter. An attempt was made here to analyze the flow of goods to and from New England and within the region. Since data with regard to movements of goods by motor carriers were not available, the statistics were limited to rail and water for interregional and to rail for intraregional shipments. The analyses were based on two studies by staff economists of the Committee of New England: Staff Memorandum No. 1, "Origins and Destinations of New England's Rail Traffic, 1949," by Ray S. Kelley, Jr. (March 1952); and Staff Memorandum No. 12, "New England's Trade with the Rest of the United States and with Foreign Countries," by Ray S. Kelley, Jr. and Sheila E. Sweeney (February 1953).

The most striking characteristic of New England trade was the great excess of inbound over outbound tonnage. Inbound rail and water tonnage was almost six times the outbound in 1949. Inbound rail tonnage was more than three times outgoing shipments. Rail tonnage to and from New England was over three times the rail tonnage which moved within New England. Better utilization of transport facilities could be achieved if the imbalance of traffic could be lessened, but the possibilities for balancing the traffic flow were found to be extremely limited. The analysis of the geographic origin and destination of products indicated that Canada was New England's biggest partner in foreign trade, which suggested to the author the desirability of good transport between the two areas.

Finally, it was recommended that the New England states should sponsor or support research on the following topics in transportation: (1) a system for the collection of statistics on the tonnage movement by motor transport, both private and for-hire carriage, in New England; (2) a determination of user cost of highways; (3) the need for and location of public or cooperative terminal facilities for motor transport; (4) the possibilities for greater coordination between road and rail transport, including piggy-back.

D. Reports by the New England Governors' Committee on Public Transportation

The third and last of the committees appointed by the New England Governors to study the transportation problems of the region functioned for two and one-half years between March 15, 1955 and October 14, 1957. Usually referred to as the Governors' Committee, Donald W. Campbell of Massachusetts was chairman of the eighteen-member Committee, its work covered a fairly wide range of subjects relating to public transportation. An interim report and a series of ten reports were issued during the Committee's life. They were bound and issued in a single volume entitled "Public Transportation for New England," in November, 1957. (4.).

Most of the reports consist of two parts. The first part is a policy statement expressing the conclusions and recommendations of the Committee. The second part is a research report prepared for the Committee by a professional economist or a consulting firm upon which much of the policy statement is usually based. Each of the reports will be reviewed briefly with emphasis on the significant conclusions and recommendations.

1. Interim Report - New England's Public Interest in the Boston & Maine - New Haven Railroad Relationships (4, 1955): The Interim Report was occasioned by the prospect that the Boston & Maine and the New Haven might be integrated either by joint control or merger. Mr. Patrick B. McGinnis, president of the New Haven, had in effect won control of the Boston & Maine and was petitioning the Interstate Commerce Commission for permission to serve as president and director of this road while continuing as president of the New Haven. The Governors' Committee opposed a common presidency of the two roads and contended that their merger would be against the public interest of the region. While acknowledging that former committees had favored such a merger, the Governors' Committee could find no net advantage in such a proposal under modern conditions. Earning capacity would not be greatly improved since merger would not change their shorthaul character or eliminate their passenger losses. Any possible economies could be achieved by closer cooperation such as that effected through joint use of facilities and

staffs at common points in Massachusetts. The big disadvantage would be the loss of competition on long-haul traffic to and from the West and South.

Far more advantageous would be the integration of the New England railroads with eastern trunk-line systems. Such an integration would recognize that the economic place of railroads is in long-haul, bulk transportation (and in piggy-back) and that New England's transport links with the rest of the country are of vital importance. It was speculated that greater economies of operation and improvements in service could be obtained from end-to-end rail consolidation than from a regional merger. With two or more trunk lines serving New England, competition would be retained. Ideally, one of these trunk lines, say a merger composed of the Boston & Maine, the Delaware & Hudson, and the Erie or the Lackawanna (they were then separate), would have a New England orientation and would find the New England ports its most profitable seaboard connection.

2. No. 1 - National Transportation Policy and the New England Economy (4, 1956): This report reviews and expresses opinions regarding the proposals made in the Report to the President by the Presidential Advisory Committee on Transport Policy and Organization entitled "Revision of Federal Transportation Policy" (April 1955). The underlying objective of the President's Committee (sometimes referred to as the Weeks Committee) was to endorse greater reliance on competitive forces in pricing and to reduce economic regulation of transportation. Seeing in these developments advantages in the form of a more economic allocation of traffic among the modes of transport and possibly more favorable rates on long haul shipments, the Governors' Committee endorsed the recommendations looking toward greater discretion by the managements of common carriers. Those recommendations leading toward greater regulation, such as those providing more restrictive definitions of private carrier and motor and water contract carriers and repealing the exemption of bulk commodities transported by water, were opposed.

3. No. 2 - The St. Lawrence Seaway and New England (4, 1956): The policy statement of the Governors' Committee was based on a digest of his doctoral dissertation prepared by Professor Sargent Russell of the University of Massachusetts. The report was entitled, "The Potential Effects of the St. Lawrence Seaway and Power Projects on the New England Economy," and analyzed by commodity the imports and exports susceptible to loss, prospects for commodity movements between New England and the Great Lakes, prospects for the development of trade with northern New York State and with Canada, potentials for industrial transfer to the Great Lakes Area, and the effect of St. Lawrence power on New England.

It was not likely, concluded the Governors' Committee, that "large-scale reductions" in the volume of freight moving through New England's ports would occur with the completion of the St. Lawrence Seaway. Since the preponderance of merchandise moving through the ports, except for petroleum and grain, had a New England origin or destination, little diversion was anticipated. The most serious threat to Boston and Portland was the loss of export traffic in grain. These ports served as "overflow ports" and received grain by rail from Buffalo or other Great Lakes ports particularly during the winter months. Measures recommended to counteract any traffic diversion were the creation of a Massachusetts Port Authority to revitalize the Port of Boston and renewed efforts to eliminate the differential rates (only those on grain from Buffalo had been removed) discriminating against the New England ports.

Development of an all-water common carrier ship service between New England and the Great Lakes was regarded as unlikely, owing to the circuity of such a route and preferences of shippers for rail or truck transport. Neither was it felt that any established industry would be induced to move to the Great Lakes area, since New England would lose nothing of its potential as an industrial site. Moreover, the Seaway should be regarded not alone as a competitive threat but as a contributor to Canadian economic development which could ultimately yield benefits to the industrial and recreational sectors of New England's economy. Finally, the Governors' Committee commended the announced policy of imposing toll charges sufficient to make the enterprise financially self-supporting.

4. No. 3 - Local Public Transportation in New England (4, 1956): A research report by Hawley S. Simpson of the firm of Simpson & Curtin, transportation engineers, of Philadelphia was the basis for the policy statement on local public transportation. The research report contains data for the 111 private transit companies operating in New England in 1954 and a few references to the two publicly owned transit systems, namely, the Boston MTA and the Greenfield-Montague Transportation Area. The adverse trends for such variables as passengers, operating revenues, revenue miles, and average fares for New England and the country as a whole are compared. Causes for the decline in the transit industry are analyzed and the consequences of deterioration in the transit system are explored. Attention is then given to the aid which may be rendered to assure survival of essential local transport service by such agencies as state and municipal governments, local business interests, and local transit managements. While some data with respect to taxation and regulation by the several New England states are set forth, the problems and their solutions are discussed largely in general terms. There are only scattered references to situations or problems in particular New England communities.

Finding that there is still a great need for urban transit, especially during the rush-hour periods, and indicating a strong preference for private operation of transit systems where at all feasible, the Governors' Committee made recommendations with respect to tax relief, regulation, highway planning and use, and the peak demand problem. Noting that user charges are intended chiefly to provide funds for state highways and not city streets, it was recommended that transit companies be relieved substantially of all fuel taxes and vehicle registration fees. Franchise taxes, where assessed, should also be discontinued. Regulatory statutes and procedures should be revised to permit greater managerial discretion in adjusting fares and services and the expediting of necessary proceedings. Much could be done in street and expressway planning and utilization to accommodate transit buses and thus improve the speed, safety, and comfort of service. It was suggested that consideration be given to the reservation of transit lanes for exclusive use of buses, especially during rush hours, provision of safe transit loading zones, restrictions on freight-carrying vehicles during rush hours, and provision of facilities to coordinate automobile use and rail or bus rapid transit. Amelioration of the peak demand situation was regarded as very desirable, but the only suggestion made here was the obvious one of staggering working hours.

5. No. 4 - Intercity Bus Transportation in New England (4, 1956): The policy statement on intercity bus transportation was also based upon a research report by Hawley S. Simpson of Simpson & Curtin. While it was found that 66 carriers engaged in intercity bus operations in New England in 1963, the statistical data in the research report are confined to the 38 companies that were subject to the jurisdiction of the ICC. Since the most comprehensive data are available for the larger of these interstate carriers, most of the analysis relates to the 14 Class I carriers that were domiciled in New England in 1953 and 1954. Bus companies operating strictly intrastate and reporting to state authorities were not included in any way. In ascertaining the availability of bus or rail service, a random sample of 20 per cent of places of 1,000 or more inhabitants were studied. It was shown that 23.5 per cent had no public passenger service in 1955, 31.6 per cent was wholly dependent on bus service, 13.3 per cent was solely dependent on railways, and 31.6 per cent enjoyed both bus and rail service.

The analysis of operating results was confined to the 14 Class I interstate carriers and covered the period 1950 to 1954. During this five-year period, the combined reports showed net deficits for every year except 1952. Accounting for these unsatisfactory results were marked declines in the number of passengers, passenger-miles, and revenues, and increases in operating expenses per bus mile.

Concluding that "regular-route intercity bus service is essential to New England," the Governors' Committee made several recommendations for remedial action. In the field of taxation, it was suggested that the federal transportation tax be eliminated, that full reciprocity in registration fees be established, and that fuel taxes be pro-rated among the states according to gallonage consumed in each state irrespective of where the fuel was purchased. Among suggestions in the area of regulation were prompt action on proposals for fare changes, the use of the operating ratio in determining the reasonableness of charges, the prescription of tapering fare scales, and the extension of greater freedom on the part of operators to discontinue noncompensatory services. It was acknowledged that there was no ready solution to the problem of preserving intercity passenger service and that the ultimate choice between public and private passenger transport rested with the traveling public itself.

6. No. 5 - Motor Freight Transport for New England (4, 1956): A research report by Professor Robert A. Nelson entitled "The Economic Structure of the Highway Carrier Industry in New England," was the basis for the policy statement on motor freight transportation. Found in Nelson's report are a description of the organization and proportions of the highway transport industry in New England in 1954, an evaluation of Federal regulation, and an analysis of the economic characteristics of the industry. Data were obtained from three sources, namely, the records of the Bureau of Motor Carriers of the ICC, the state regulatory agencies, and questionnaires sent to motor carriers and shippers. Most of the statistics underlying the economic analysis were taken from the annual reports of 102 Class I interstate carriers of general freight domiciled in New England and 65 similar Class I carriers operating in New England but domiciled outside of the region.

While many of the findings confirm those of earlier studies, others provide new insights into the features and performance of the region's motor transport system. New England was found to be more dependent than the country as a whole upon highway transportation, the highway share of combined rail-highway ton-miles being at least 50 per cent for the region as compared with 27.8 per cent for the nation. Short haul movements were of great importance to the region and the charges per ton-mile were found to be substantially higher for short hauls than for long. The higher charges for short hauls were explained by: (1) the small average load on short hauls; (2) the larger terminal costs per vehicle-mile on short hauls; and (3) the absence of railway competition where the average hauls are less than 300 miles. The crucial factor of small average loads was attributed to the presence of service competition among short-haul motor carriers, which required more vehicles and more frequent operations, and the suppression of rate competition under ICC and motor rate bureau regulation. Such factors as severe climatic conditions, traffic congestion, inadequate highways, and antiquated shipper facilities, which were often cited by the motor carriers as reasons for high operating costs in New England, were minimized as factors explaining the relatively high motor carriers rates in the region. Of more general interest was the conclusion that "no appreciable economies of scale are apparent in the highway carrier industry."

Based in considerable measure on Nelson's conclusions and recommendations, the Governors' Committee made recommendations looking toward a relaxation of controls and an encouragement of competition with respect to rates as well as service. The elimination of all regulation was not advocated. Safety control was regarded as essential and should be strengthened. Entry should not be completely free, but should be based eventually on criteria of fitness and ability rather than protection of existing carriers. There was no immediate need for the entry of new firms, rather the situation called for a broadening of existing certificates to enhance operating efficiency. The states should work toward greater uniformity in vehicle length and gross weight limits and more uniformity in enforcement. It was recommended also that operating problems such as traffic congestion and public terminals be given further study.

7. No. 6 - Air Transportation for New England (4, 1956): "Aviation Policy for New England" by James C. Buckley, Inc., Terminal and Transportation Consultants, constituted the research background for the policy statement on air transport. Among the matters investigated by Buckley were the importance of aviation to New England, the present status of aviation development in the region, current and prospective problems requiring attention at various levels of government, matters on which state legislative or administrative action might be required, and areas for state-local cooperation. Data were set forth with respect to available scheduled air service within and to and from the region as well as the actual use of available schedules for the period 1948 to 1955. Growth in scheduled air traffic was found to have lagged behind that for the country as a whole. Overseas schedules from Boston were also reviewed and deficiencies noted. Other matters treated in the research report were the extent, importance, and basic needs of general aviation; the characteristics, financing, and federal support of the region's airports; avigational aids and airways; and problems relating to access highways and ground transportation.

The Committee's policy statement focused on a discussion of several conclusions relating to the main aspects of air transport in the region. Commercial air transportation within New England, while not entirely adequate, was found to be provided to the extent warranted by traffic and permitted by airports and avigational aids. The major gap in the route pattern was an east-west route in northern New England. With respect to interregional service, however, single-carrier service was declared to be insufficient to meet the medium and long-haul travel needs. Improvements could best be achieved, it was believed, by the development of a strong New England-based air carrier for interregional as well as intraregional service. International air service, while extensive, was found to be unbalanced and quite inadequate to the Caribbean area and to Central and South America. The importance of general aviation, including business and private flying, should be more fully recognized. It was recommended that the requirements for general aviation be given as much consideration as those for public-carrier services in the planning of airways, airports, and like facilities.

The Committee recognized that many airports required substantial improvement in order to accommodate modern aircraft. The creation of airport authorities, often embracing service areas in two or more states, was recommended as an administrative device to gather resources for larger and more modern regional airports. While public support for airport development and scheduled air service was endorsed, the Committee pointed to the need for continuing scrutiny of aid practices and the desirability of eventual withdrawal of all subsidies.

The New England Conference of State Aviation Officials, an organization long active in aviation affairs, was endorsed as the appropriate agency to direct and obtain action favorable to air transport development in the region.

8. No. 7 - A Railroad Policy for New England (4, 1957): The research report entitled "The New England Railroads" was prepared by Professor Martin L. Lindahl. After some brief historical notes, this report treats the railroad system of the region in terms of size and structure and dominant characteristics. Statistical comparisons are made between 1929 and 1954 or 1955. The section on traffic deals with traffic trends and contains interchange figures for the years 1929 and 1954 for each of the New England railroads. The flow of loaded cars within the region as well as the flows through the various gateways are shown. In the section on earnings and financial condition, operating revenues and expenses are analyzed in detail and problems relating to maintenance policy, taxation, and passenger operations are considered. Discussed in the final section are the nature and extent of competition among the roads and various proposals for consolidation. Merger of the New Haven and the Boston & Maine was found not to be in the best interests of New England. More persuasive arguments could be made for trunk line affiliations, but several practical considerations stood in the way of achieving these. For the present, it was recommended that the New Haven and the Boston & Maine remain independent.

The Committee's policy recommendations centered largely around consolidation, taxation, and railway passenger service. Its views concerning consolidation, already noted, were reiterated. Favored were consolidations that would create long-line systems with primary orientation toward New England ports, but since prospective combinations did not provide for such orientation the maintenance of independence was advocated. In the area of taxation, it was recommended that the federal transportation excise taxes be removed and that the states review their tax policies with the objective of lifting burdensome property or other taxes where inequitably assessed. As regards passenger service, the state and federal regulatory agencies were urged to cooperate with the railways in their efforts to discontinue services rendered at hopeless out-of-pocket losses. Where service is rendered at a loss and it is regarded by the public as essential to its well-being, public aid was suggested as the only feasible alternative. Labor was also asked to cooperate through courteous treatment of the public, the elimination of manpower not required for safe and efficient operation of trains, and the acceptance of wage payments more reasonably related to actual service performed.

9. No. 8 - Water Transportation Policy for New England (4, 1957): In a research report that is excellent in content, analysis, and style, Professor Romney Robinson reviewed the function of water transportation in the regional economy, the effectiveness with which port facilities performed the services expected of them, and what could be done to improve their services. Emphasis was upon public transportation services, general cargo and passenger, hence little attention was given to the smaller ports and to the greater part of waterborne tonnage like coal, oil, and bulk materials that move in private and charter operations. The first three sections of the report deal with the ports as a whole. The introduction treats the ports as producers of employment and income, their place in the transportation network, the decline of coastal transport, and the relative importance of ocean shipping. Statistics of port operation, both current and historical, are set forth in considerable detail. There follows an interesting analysis of the economic forces which tend to push cargoes along particular routes and through particular ports. Separate chapters are devoted to the Maine ports of Portland and Searsport, the port of Boston, and the southern New England ports of Providence, New Haven, and Bridgeport. Their historical background, physical facilities, traffic handled, rail service and rate problems, and future prospects are among the matters considered. Concluding observations are made about the impact of the St. Lawrence Seaway, technological changes like roll-on, roll-off ship operations, and labor-saving innovations in relation to Boston's competitive position.

The Governors' Committee's policy statement contains conclusions largely and few recommendations. It was noted that most of the waterborne tonnage, over 90 per cent, consisted of incoming cargoes of fuels and industrial raw materials, and that only Boston and Portland handled any significant volume of general cargo traffic. The Committee saw little likelihood of any other port successfully establishing general cargo service, especially in view of the virtual disappearance of coastal general cargo shipping. Neither did it find prospects good for any substantial increase in passenger travel via the port of Boston. Regarding general cargo service, Boston was found to have good service for incoming cargoes from many (but not all) parts of the world but poor export service owing to the powerful competition from New York and other ports. Here it was felt that success in attaining rail rate parity and stronger solicitation by rail and water carriers might do some good. It was the view of the Committee that it was neither practicable nor desirable to develop a common New England policy with respect to port affairs or port development. Decisions with regard to development and financing must necessarily be made on an individual basis and are essentially of local rather than regional concern.

10. No. 9 - New England Highway and Railroad Freight Rates (4, 1957): As suggested by the title, this report contains two policy statements. The first is headed "New England Highway Freight Rates," and the second is entitled

"Railroad Freight Rates and New England's Competitive Position." The research report supporting the policy statement on highway freight rates was prepared by Professor Robert A. Nelson. In the first section, Nelson reviews rate-making procedures and the regulation of motor carrier rates by the ICC. He then presents an interesting account of the evolution of the freight rate structure and elaborates the unique features of the New England system. The main part of the report deals with the competitive position of the region as affected by highway freight rates. Here he chose commodities representative of the region's economic interests, such as iron and steel, foodstuffs, plastics, cotton piece goods, and boots and shoes, and compared rates between New England points and the important markets outside of the region with rates on the same commodities between non-New England points and the same markets. The general conclusion was that New England shippers did not suffer competitive disadvantages owing to class or commodity highway carrier rates.

Accompanying the research reports Nos. 5 and 9 is a statistical appendix entitled "Statistics of Highway Carriers Operating in New England." It contains statistical tables showing the service characteristics and operations of the carriers operating in the region as well as a summary of responses to shipper and carrier questionnaires.

After noting that the New England class rate structure was based on the average cost of highway operation and not related directly to rail class rates, the Governors' Committee agreed that it did not of itself impose a competitive burden upon industry. Interregional rates, although based on rail rates, also gave New England favorable treatment. Recommendations included giving the motor carriers greater rate-making latitude in order better to adjust rates to shippers' needs, and a repeal of the law permitting rate concessions to government agencies not available to private shippers.

The research report "Railroad Freight Rates and New England's Competitive Position," prepared by Professor Martin L. Lindahl, was the basis for the policy statement on railway rates. Patterned on the study of railroad rates made under the auspices of the Committee of New England in 1952, the research report sets forth actual railroad freight rates in effect on February 1, 1956 on a variety of raw materials and finished goods (31 products) that are important to the regional economy. Comparisons were made of the freight rates paid on raw materials by New England producers and their competitors outside of the region as well as rates on finished products from the principal producing centers of New England and those in other regions to selected major consuming markets. Except for raw materials indigenous to the region or those imported from abroad, New England users of raw materials usually paid more in freight charges than buyers situated in less remote sections of the country. Owing again to geographical location and the greater distances involved, numerous rate comparisons indicated an unfavorable transport-cost situation on finished products moving beyond the boundaries of the region. In other instances an advantage in transport costs existed on movements to a limited market area to the west and south. In the case of highly specialized or differentiated products, markets were wider than seemed warranted by transport costs alone. The availability of special commodity rates, carload rates based on alternative minimum weights, and the westbound Canadian differential rates tended to ameliorate the unfavorable competitive position of regional producers. The class and commodity rate structures appeared not to discriminate against New England.

Among the recommendations of the Committee were: (1) Allow the railroads greater discretion in meeting competitive situations and encourage them to extend their practice of establishing "incentive" rates based on gradations in minimum carload weights and to quote volume rates based on multiple car lots or trainloads. (2) Give serious consideration to permitting the railroads and other common carriers to make contract rates or so-called "agreed charges" in order to meet more effectively the competition of other transport services. (3) Give consideration to the application of downward graded percentages with increasing distance in situations requiring an increase in the general level of rates.

11. No. 10 - Final Report (4, 1957): The final report of the Governors' Committee is largely a recapitulation of the developments, problems, viewpoints, and policies elaborated in the individual reports. The principal recommendations, all of which have been mentioned in the foregoing discussion, are also summarized. Attention is called in the letter of transmittal to the need for a continuing New England agency to consider all major matters of transportation policy. The New England Council is suggested as a likely organization to perform this important function.

II. Studies of Individual Modes of Transportation

There has been no full-scale investigation of New England's transportation system since the Governors' Committee on Public Transportation reported in 1957. There have been a number of reports issued, however, relating to individual modes of transportation or dealing with special problems. Most of these have been concerned with the railways and have been occasioned by their financial distress, their commutation problems, or by prospects for their merger. A few have dealt with air transportation and the others are general in nature. The recent studies will be reviewed under four headings: Railways, Commutation and Transit, Air Transport, and General.

A. Recent Studies Relating to the Railways

1. Martin L. Lindahl, The New England Railroads (5): This report is essentially an updated version of the 1957 study of the same title that was prepared as background for testimony presented in support of the New Haven's inclusion in the Pennsylvania-New York Central merger. Most of the statistical data are brought up to 1962 or 1963. Traffic flow data for the year 1960 were developed from the ICC Carload Waybill Statistics and comparisons made with comparable data for 1949. Interchange data for the individual railroads were gathered for the years 1960 and 1961. While the interchange data for 1961 were not complete, some comparisons could be made with 1929 and 1954. It was found, for example, that interchange of loaded cars with outside carriers at New England frontiers was of growing importance to the leading New England roads, hence the need of a policy that will facilitate the expeditious and economical flow of traffic to and from New England.

While the New England roads held their own in the early 1950's, they suffered large and almost continuous losses in freight and passenger traffic after 1956. As a group, they incurred sizable net deficits between 1957 and 1963. For the purpose of gaining some insight into the managerial policies of the carriers in meeting their problems, analyzed in some detail were labor costs and employment, fuel and power costs, maintenance of plant and equipment, equipment and joint facility rentals, taxation, and passenger operations. The credit standing and financial strength of the region's railroads, with very few exceptions, were found to be very poor. Prospects were not good for raising capital to modernize plant and thus strengthen their competitive position in the transport field.

2. James R. Nelson, Railroad Mergers and the Economy of New England (6): Professor James R. Nelson has written a scholarly report which provides a lot of information, careful analysis, and significant insights with respect to railway mergers in New England. The paper combines in an interesting and useful manner a consideration of economic history, economic analysis, transport technology, public policy in relation to transportation, railway mergers in general, and the proposed merger of the New York Central and the Pennsylvania Railroads. The first quarter of the study is largely historical. Considered are the economic and geographic factors which shaped the railway system and which created transport problems. The immediate background to the current rail merger movement is discussed in some detail, with emphasis upon the Ripley and successor plans under the 1920 Act, the reactions of the Storrow and Spaulding Committees to these plans, and the changing pattern of transportation in the region. In elaboration of the latter, attention is called to the growth of trucking and the decline in coastwise shipping and the implications of these developments for the railways and for merger proposals. A long chapter is devoted to freight traffic movements, based upon the ICC Carload Waybill Statistics for 1950 and 1960, in an attempt to ascertain the function of rail transport in the regional economy and the organizational structure best suited to the performance of that function. It was found, among other things, that the long-haul function of the railways predominates, that New England shippers and users of manufactures have not suffered ratewise in relation to the rest of the country, and that the level of westbound rates appears not to reflect the dominant movement of empty cars in that direction. The Penn-Central merger proposal in relation to the position and problems of New England is then considered at length, with careful documentation from the thousands of pages of testimony and exhibits accumulated in the proceedings before the ICC.

In drawing conclusions, Nelson combines institutional and theoretical considerations and presents solutions to merger problems on three possible levels: the optimum, the realistic, and the unacceptable. Assumptions for the "optimum" were that mergers in the northeast should result in competition but minimum competition, that the merged companies should have adequate and balanced financial strength, that possible service improvements from end-to-end mergers should not be subordinated to the cost savings attainable from side-by-side mergers, and that the size of merged companies be held to the minimum required to achieve the foregoing merger advantages. The "optimum" pattern was found to be a two-party system: (1) Pennsylvania-Norfolk & Western-Nickel Plate-Erie-Lackawanna-Delaware & Hudson-plus the New Haven; (2) New York Central-Chesapeake & Ohio-Baltimore & Ohio- plus the Boston & Maine. The "realistic" solution to the merger problem was declared to be a two-party system as follows: (1) New York Central-Pennsylvania- plus the New Haven; (2) Chesapeake & Ohio-Baltimore & Ohio-Norfolk & Western-Nickel Plate-Wabash-Erie-Lackawanna-Delaware & Hudson-Reading-Central Railroad of New Jersey- plus the Boston & Maine. Held to be "unacceptable" were the creation of a New England terminal system, of which the New Haven and the Boston & Maine would be the essential ingredients, and the very tentative proposal to merge the "little five", namely, the Erie-Lackawanna, Delaware & Hudson, Boston & Maine, Reading, and Central Railroad of New Jersey.

Professor Nelson closes his report with a critical appraisal of regulatory policies and practices in relation to railroad mergers. He deplores the seeming lack of interest on the part of the ICC in "optimum territorial organization of railroads" and, in particular, the failure of the Commission to combine the major northeastern merger applications for hearing and decision. If adequate and efficient rail service are to be attained, the Federal government must assume a more active role in transportation planning. Financial weakness, obsolete capital structures, and speculative security prices constitute major obstacles to the implementation of otherwise economically justified and desirable mergers. In order to facilitate the combining of "strong" and "weak" railroads, Professor Nelson recommends that the ICC be given adequate authority to compel the recapitalization of financially weak carriers on the basis of current and prospective earning power.

3. Arthur D. Little, Inc., The New England Railroad Study- Volume I: Rail Freight Traffic Patterns (7): This report on the pattern of rail freight traffic in New England was prepared for the Office of the Under Secretary for Transportation, United States Department of Commerce. Answers were sought for a number of questions posed by the Deputy Under Secretary of Commerce for Transportation (Policy). The questions related to such aspects of traffic flow as: the identification of the major rail freight traffic load centers; the commodity composition of the rail traffic handled by these load centers; the origination and termination of traffic; carload interchange; volume and direction of traffic moving through each of the Hudson River gateways; density and direction of freight traffic on each portion of the system; the pattern of freight train operations for collecting, distributing, and interchanging traffic; and, finally, the nature and portion of the traffic moving through the Port of Boston that is handled by the railroads. Excluded from the data were the Canadian lines and the Rutland. Data obtained directly from the railroads covered the year 1962, while tabulations from the ICC's 1% Waybill Sample were for the year 1961.

Much valuable information relating to traffic flows is presented in the report. Freight traffic activity on the five railroads studied was found to be highly concentrated. The 105 load centers (stations handling more than 1000 cars annually) accounted for more than 81% of the total number of cars originated and terminated on the entire system in 1962. Twenty-one of the load centers accounted for almost 60% of the total traffic, and Boston alone accounted for more than 22% of the traffic. The remainder of the more than 1,000 freight stations on the 5,100 miles of railway handled less than 20% of the total traffic. Of the 105 load centers, 46 were located in Maine and constituted (except for Portland) non-urban shipping points for paper, pulp, and potatoes, while the others were primarily urban manufacturing and distributing localities in southern New England. Detailed information is presented with respect to balance of traffic at the load centers, the density of traffic on main lines and branch lines, and the pattern of freight train operations. The Port of Boston was found to generate an insignificant amount of rail freight relative to other sources. New England shippers tend to use Boston "when possible" but show preference for steamship service in New York. Finally, it was observed that the rail lines in New England should be characterized not so much as a freight "gathering and distributing" system but as a system operated "primarily as connecting links between load centers and between load centers and regional rail gateways."

Mentioned in the letter of transmittal, dated November 8, 1963, is a second part of the New England Railroad study, namely, a study of the truck subsidiaries of the New Haven and the Boston & Maine Railroads. This research report has not been available to me. Perhaps it can be obtained from the Department of Commerce.

4. United Research Incorporated, Freight Potential for the New Haven Railroad 1965-1970 (8): This research report was prepared under the supervision of Professor Paul W. Cherington for the Trustees of the New Haven Railroad and was submitted as an exhibit by Professor Cherington and Alfred H. Norling in the Penn-Central merger proceeding. The study was submitted in two volumes. Volume I contains a summary and conclusions, a general discussion of regional economic and transportation trends, and explanations of the research methodology and the sources of data used. It concludes with a summary forecast of New Haven freight traffic by commodity classification for 1965 and 1970. Volume II contains detail on past and projected trends for specific commodities and commodity groups. Commodities selected for examination when aggregated accounted in 1960 for 83% of New Haven tonnage and 80% of revenues.

The general conclusions were that economic activity in New Haven territory would increase through 1970, but at a rate slower than for the nation as a whole, and that the potential for rail freight would increase but at a rate lower than that for economic activity. More specifically the New Haven "freight traffic potential" in 1965 was estimated at a minimum level of 4.1 per cent over 1961 traffic levels and in 1970 at 9.6 per cent. On the assumption that a reasonable portion of the traffic lost to motor carriers and private carriers could be recaptured, the estimated increases over 1961 were 10.5 per cent in 1965 and 17.3 per cent in 1970. These estimates were not to be construed as forecasts, warned the authors, for they were based on the assumption that changes in rates and services would be made by the New Haven and connecting railroads to meet more effectively the competition from other modes. Since the competitive position of the railroads varies with the length of haul, it was recognized that traffic once moved by rail within Southern New England could not be counted as rail potential. On the other hand, the bulk of the traffic moving between New Haven territory and points in the Middle and South Atlantic and the North Central states was regarded as potential rail traffic. Service improvements and competitive rates were essential to achieve the rail potential on this long-haul traffic. The New Haven's status as a regional short-haul carrier, concluded the authors, was a severe handicap because so little of its traffic potential was under one-carrier control.

5. Ford K. Edwards, A Financial Study and Analysis of the Transportation Costs and Revenues of the New York, New Haven and Hartford Railroad (9): This study was sponsored by the New York State Office of Transportation for the Interstate Staff Committee on the New Haven Railroad. It afforded a basis for at least two reports by the Interstate Staff Committee, one dated April 5, 1962 and the second dated February 15, 1963, to the Governors of the states of Connecticut, Massachusetts, New York and Rhode Island.

The general conclusion of Edward's study was that the bulk of the New Haven's deficit was attributable to freight services and passenger services other than commutation between Western Connecticut, Westchester, and New York City. The New Haven's deficit of $16,880,553 in 1961, after taking into account Grand Central Terminal ground rents and related charges, was allocated as follows: commutation $409,606, other passenger $9,001,438, and freight $7,649,509. This result differed by a large margin from the New York commuter deficit of $6,207,576 found by the hearing officers, Commissioner Webb and Examiner Ries, in the New Haven Passenger Fares case decided by the ICC in 1961. The highly controversial issue relating to the amount of the New York commuter deficit has not been settled.

6. Connecticut Public Utilities Commission, Investigation of The New York, New Haven and Hartford Railroad Company (10): By direction of the Connecticut legislature, the Public Utilities Commission conducted an exhaustive investigation of the New Haven. Findings and recommendations were published in three reports, the third and concluding report being issued in January, 1961. Extensive investigations were made of the service provided, the maintenance or lack of maintenance of equipment, roadbeds, and station facilities, the financial condition of the railroad, and the nature of its management. Contained in the reports are much factual information and critical evaluations of policies and practices. They provide insights into the causes of the New Haven's decline and eventual bankruptcy in July, 1961. Emphasized in the recommendations were the need to stabilize and upgrade management, to step up maintenance and repair programs, and to extend tax relief to the carrier.

B. Recent Studies Relating to Commutation and Transit

1. Mass Transportation Commission, Mass Transportation in Massachusetts (11): This document is the final report on the Mass Transportation Demonstration Project which was prepared under the direction of Dr. Joseph F. Maloney. The Demonstration Project, costing $5.4 million in federal and state funds, was conducted between December 10, 1962 and March 28, 1964 throughout the Greater Boston region and in the urban areas of Fitchburg, Worcester, Pittsfield and Fall River. Its purpose was to provide data as to the effects of various service and fare changes, alone or in combination, on transit ridership.

After sketching the background and the regional setting, the report describes and analyzes the results of the various railway, bus company, and MTA experiments. There are also chapters on rail cost analysis, market surveys, and legislative action. The appendices include a bus industry cost study, analyses of MTA parking lot experiments, and a demonstration project chronology.

In addition to the final report, there are four supplements which present detailed analytical data upon which the findings of the Project are based. The supplements are:

First Supplement - This is entitled "The Boston Region" and is a preliminary survey and analysis of the Greater Boston region.

Second Supplement - This is an analysis of the costs of railroad commuter service performed by the consulting firm of McKinsey and Company, Inc.

Third Supplement - Prepared by Systems Analysis and Research Corporation, this supplement contains the statistical results of all the individual experiments, cost analyses of the private bus companies, and a discussion of MTA costs.

Fourth Supplement - This supplement was prepared by Joseph Napolitan Associates, Inc. and presents the in-depth market survey of the actual patrons of the Demonstration experiment. It includes an analysis of the varying characteristics and expressed preferences of the different passenger groups utilizing railroad, bus and MTA facilities.

The major finding was that the declining trend in public transportation ridership is not inevitable and that it is possible to reverse the recent trend and to stimulate the use of public transport through service improvements and fare adjustments. Frequency of service, it was found, is a more important factor than lower fares in retaining patrons and in attracting additional passengers to railroad suburban service. Passengers could be attracted to suburban service during both peak and off-peak hours. And carefully selected incremental improvements in frequency of service can be self-sustaining. But the cost analysis and financial results indicated clearly that rail commuter service tended to be a deficit operation in the Boston area and that it could be maintained only with government financial support.

These and many more specific findings have provided an empirical basis for the long-run transportation plans that are being adopted and implemented under the Mass Transportation Act passed in Massachusetts in June, 1964. The newly created Massachusetts Bay Transportation Authority, with authority to raise funds for capital investment and with revenue support from the increase in the cigarette tax, has assumed its responsibility of establishing an efficient and coordinated system in the region embracing Boston and 77 surrounding towns and cities.

2. Simpson & Curtin, Acquisition and Public Operation of Transit Services in Providence-Pawtucket Metropolitan Area (12): This is a report to the Rhode Island Public Transit Authority, Providence, Rhode Island, by Simpson & Curtin, transportation engineers. It reviews existing transit operations in the Providence-Pawtucket metropolitan area, prospective transit improvements, past and prospective financial results of operations, and the economics under public ownership. Despite the unprofitability of the service and its threatened discontinuance by the financially stricken private transit company, sufficient public need for mass transit was found to warrant its continuation and improvement. Owing to its compactness and density, Providence could not be "adapted as an auto-oriented community." Public acquisition and operation were recommended and a plan for a negotiated purchase was suggested.

C. Studies Relating to Air Transport

1. The Thompson & Lichtner Co., Inc., A Master Plan for Regional Airports to Serve Scheduled Air Transportation Needs of New England (13): The New England Council, upon the recommendation of its Air Transportation Committee, initiated a survey of the region's airports as part of an effort to improve scheduled airline service in New England. It was felt that a part of the problem of securing adequate airline service stemmed from deficiencies in the airport structure. Many of the airports were inadequate as to size and facilities; too few were equipped for all-weather operations; and in some instances required stops were too close together to permit economical operation of scheduled flights. The engineering firm of Thompson & Lichtner Company, Inc. was retained to survey the regional airport structure and to prepare a master plan which would best serve the needs of the region. They were to determine the best locations, both geographically and economically, for regional airports, and were to make the maximum practicable use of existing facilities.

The full report, which is available at the Statler Building Headquarters of the New England Council, contains a discussion of the factors affecting air transportation and the considerations pertinent to the location of airports. A summary report published by the New England Council is also available. Part I of the complete report contains discussions of such matters as transportation trends, air travel data, air carrier use indices, existing regional facilities, aircraft trends, and criteria for regional airports. Part II contains appendices relating to population distribution, ground access distances, origin-destination data, railroad and busline passenger service, and related matters.

Three basic minimum criteria were established for regional airports: (1) a runway length of at least 5,000 feet; (2) an all-weather airport having an instrument landing system, runway lighting and control tower: (3) normally within an hour's ground distance of the area served, unless the area served is of low population density. Other criteria to be considered were the number of passenger departures per year, the record of airport growth, and available facilities for passengers and for the housing and maintenance of planes.

The investigation revealed the need for 20 regional airports distributed by states as follows: Massachusetts 7, Maine 4, Connecticut 3, New Hampshire 3, Vermont 2, and Rhode Island 1. In 1961, New England had 6 airports that qualified as regional airports. It was the recommendation of the New England Council that available resources be devoted to the implementation of the twenty airport plan. But it was acknowledged that the airports located at the twenty communities not selected for inclusion in the regional plan were of value to New England's future in air transportation. They, and perhaps others to be constructed in the future, were regarded as essential for the development of general aviation.

2. Martin L. Lindahl, Air Transportation in New Hampshire (14): The main topics considered in this monograph are scheduled air service in New Hampshire, general aviation flying, the system of airports and airways, the work of the New Hampshire Aeronautics Commission, and some issues of public policy with respect to aviation in the State. Greatest attention is given

to scheduled air service in the State and here such matters as utilization of air service, seasonality of air traffic, and irregularity of service are treated.

In considering some issues of public policy, several recommendations were made. One was the renewal of government assistance in support of the local service operations of Northeast Airlines in the region. A second was the designation of Manchester, Lebanon, and Keene as locations for a system of strong regional airports. A third recommendation expressed preference for regional rather than State ownership and operation of airports. Finally, attention was called to the technical improvement of helicopters and the desirability of planning to take advantage of their potential in serving sparsely populated and remote communities in the State.

D. Recent Studies of a General Character

1. Connecticut Development Commission, Transportation (15): The scope and nature of this report is indicated by its subtitle, which reads "An Analysis of the Transportation of Goods and People by Rail, Highway, Water, Air, and Pipeline in Connecticut." It is one of a series of technical reports prepared during the inventory phase of the Connecticut Interregional Planning Program. The research was carried out by Sidney A. Kahn, the text was written by Carl E. Veazie, and the economic consultant was Dr. Benjamin Chinitz.

For each of the modes of transportation, the report includes an inventory and description of the available facilities, the usage of these facilities in goods or passenger movement, and some consideration of future needs. The greatest attention is paid to rail transportation, including a fairly exhaustive analysis of the operational and financial problems of the New Haven. It was concluded that "the evidence demonstrates that the New Haven Railroad must be saved for essential freight and passenger services." Liquidation of the carrier, it was observed, would have a "disastrous impact" on the economy of the State. The New Haven could be reorganized and saved, in the opinion of the authors, if the following four conditions were met: (1) an increase in freight traffic stemming from faster service, more competitive rates, and more active solicitation; (2) the elimination of little-used branch lines, unless the State wishes to subsidize them; (3) additional public support for essential commuter and long-haul passenger services, both of which require marked improvement; and (4) the possible establishment of a bi-state or tri-state agency to assume responsibility for the New York suburban passenger service, the actual operation of which could be continued by the New Haven under contract.

2. U. S. Bureau of the Census, Census of Transportation, 1963 (16): The Census of Transportation, 1963, the first census of this type to be taken in the United States, will provide some useful and interesting information with respect to transportation in New England. It is comprised of four major surveys -- Passenger Transportation, Truck Inventory and Use, Commodity Transportation, and Motor Carrier. The first three surveys were taken on a sample basis, while the motor carrier survey was taken partly by sample

and partly by a complete census. The surveys are independent of each other and the results are published in four distinct series of reports. Brief comments follow.

Passenger Transportation Survey (Volume I) (16): This survey consists of two parts: Part I - National Travel and Part 2 - Home-to-Work Travel. The results of the National Travel part have been published in four advance reports, which contain detailed data with respect to the volume and the characteristics of out-of-town travel. Eastern Airlines, it is interesting to note, prepared for the New England Council a report on travel activity in New England based on a special tabulation of the census data for New England travelers. The results of the Home-to-Work Travel survey have been published in a single advance report that summarizes the volume of such travel, the distribution among modes of transport, the reasons for selection of particular modes, and selected characteristics of work commuters.

Truck Inventory and Use Survey (Volume II) (16): Final results have been published in Volume II. It contains data for each state and for the New England Division relating to such matters as size class, area of operation, major use, and size of truck fleet.

Commodity Transportation Survey (Volume III) (16): The results of the commodity survey are being published in three series of reports: shipper, production area, and commodity. The preliminary shipper series of reports contain data for 24 groups of commodities ranging from meat and dairy products to instruments, photographic equipment, and watches. Related in the seven tables presented for each group of commodities are such variables as tons and ton-miles, means of transport, distances, origins, and destinations. These tabulations should yield valuable information with respect to the importance of private trucking in the New England transport economy and also with respect to the origins and destinations of all freight traffic in the region.

Motor Carrier Survey (Volume IV) (16): Results will be published in final form only. The data will pertain to the size, characteristics, and operations of "for hire" highway carriers that are not subject to ICC control.

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    - Volume II - Truck Inventory and Use Survey (1965)
    - Volume III - Commodity Transportation Survey
    - Volume IV - Motor Carrier Survey

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TASK FORCE REPORT E

A Survey Of Regional Planning and Economic Research On Roads In New England

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SECTION 1 EVALUATION

I. Introduction

Section 1 presents a survey of the number, type and significance of the sources with a brief descriptive statement of the nature and content of the sources which the Committee considers to be most useful. Section 2 presents an annotated bibliography of all sources believed to offer some contribution to a consideration of roads and transportation in the New England economy.

The sources mentioned in Section 1 are keyed for reference purposes to Section 2 by listing with their assigned bibliography number following in brackets, e.g., Lowell D. Ashby, "Growth Patterns in Employment by County" (17).

II. Planning

A. Interstate

(a) Northeast Corridor

There are four studies involving the northeast corridor (1, 2, 3, 4). The most recent is a preliminary draft of a design for future impact studies in the northeast corridor. The earlier studies contained travel data and travel projections. The northeast corridor includes southern New England, Massachusetts, southern New Hampshire and southern Maine.

(b) Tri-State

At least 12 reports stemming from the Tri-State Transportation Committee have been issued. (5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16). These reports include all transportation services as well as a description of the structure and dynamics of the region. The Tri-State Transportation Committee includes New Jersey, New York and Connecticut.

(c) New England States

These sources include general references on a variety of highway related topics and some specific studies with respect to New England as a region. One of the more recent is that by Lowell D. Ashby, "Growth Patterns in Employment by County." (17) New England is covered in Volume I of this series.

An older study edited by Bright and Ellis, "The Economic State of New England" has some limited reference to highways. (19)

A recent article in Traffic Quarterly 1965 by Joseph E. Hickey presents a scenic roads program for New England. (25)

The New England Governors' Committee on public transportation for New England has made a series of reports. (32)

The New England-New York Inter Agency Committee made a series of studies on the resources of the New England-New York region in which are included references to integration of transportation between the two regions. (33)

A compact signed by Connecticut, Massachusetts and Rhode Island pledges cooperation in the development of comprehensive transportation and land use plans for the three states.

New Hampshire and Maine did a joint study of the location and economic impact of Route 95. (37)

The other sources in this section are general references which include data on the several states, i. e., gasoline tax revenue, gasoline consumption, legal problems, etc.

(d) Long Island-Connecticut Bridge

This represents proposals now being considered by New York and Connecticut authorities for a bridge to span Long Island Sound. Considerations are now in the preliminary discussion stage based on engineering feasibility studies. (40, 41, 42, 43) Governmental units in both Connecticut and New York are considering what in-depth studies may be necessary to augment existing knowledge in order that adequate judgements on the proposal may be made.

(e) Recent Federal

The A. F. T. program (Analysis Functions of Transportation) of the Federal Bureau of Roads has as its major objective the gaining of a thorough understanding of the factors influencing the need for and use of transportation and the construction of a model incorporating the requirement, performance, and constraint characteristics of an ideal transportation system. (44) This will make it possible to define the future technology required for any anticipated economy, society, and environment.

Another study sponsored by the Rand Corporation, "Program Budgeting, Program Analysis and the Federal Budget" in chapter 5 deals with the achievement of a rational transportation system. (45)

A comprehensive plan for highways in New England based on long range considerations is needed. Existing research has tended to concentrate on problems of immediate concern for limited areas; e.g., the Long Island Bridge research. Part of this study might well have been involved in a more comprehensive report in which the relation of the Long Island Bridge to other states such as Rhode Island and Massachusetts could have been explored as well as its relevance to other forms of transportation. It is also important that some of the research in this area be carried out by an organization or organizations not directly involved in highway planning and construction.

B. Intrastate (General)

(a) Connecticut

The Connecticut State Highway Department and the Federal Bureau of Roads are sponsoring a research project as part of the Connecticut Interregional Planning Program. (48) The research represents an attempt by the use of a mathematical formula to develop a priority listing of highway and major arterial construction programs. For the first time, a highway commissioner will have his entire highway network on a computer for testing purposes and will be able to assess the impact of constructing a new highway in one geographic location vs. another in a completely different geographic location. The outputs of the procedure will assess, on a dollar basis, which new construction will give the most benefits for the money invested.

A second project under the same sponsorship is attempting to predict for several major categories of goods, the modal split between truck and railroad and it will also assess the impacton the highway network when specified spur rail lines are discontinued. (47) With this study, state agencies can assess present and future impact, in the cessation of rail traffic in various parts of the state, on the highway network and on the economic development of those areas as well.

A study by the Connecticut Development Commission - "Transportation - An Analysis of the Transportation of Goods and People by Rail, Highway, Water, Air, and Pipeline in Connecticut," deals in Part II with highway transportation and the optimal utilization of transportation services. (51) This study, like the two above, was completed under the Connecticut Interregional Planning Program.

(b) Massachusetts

Similar research has been completed for several regions in Massachusetts including Boston (54, 57, 58, 59, 60, 61). In addition Massachusetts has made some studies of mass transportation and regional transportation planning. (55, 56)

(c) Local Area

The Hartford, Connecticut Area Study is one of the major local area studies. (62, 63, 64, 65) Others of importance include studies of Springfield, Mass. (75, 76, 77); Portland, Maine (74); Needham, Mass. (78) and Pawtucket, Rhode Island. (80)

(d) Statewide Area

Two specific individual system studies are the Maine-Federal highway system (86, 87, 88) and the Vermont-Interstate system. (89, 90, 91)

More general studies would include a highway program for Rhode Island (92, 93, 94, 95) and for Massachusetts (81, 82, 83, 84) by the respective State highway departments.

Intrastate research has developed most fully in just two states, Connecticut and Massachusetts but in those states some novel and important research has emerged. An actual clearing house may be needed to make available to all the New England states the research designs employed and the findings of the research. This might stimulate similar research in other states in the New England region.

III. Economic Impact Studies

A. General Impact Studies

Approximately 24 general impact studies have been made in the New England States. Connecticut with about five, Massachusetts with about twelve, and Rhode Island with three make up the bulk of the studies. The scope of impact studies in the other New England states has been very limited.

The Massachusetts Study of 128, as the first major study in the area of social and economic impact, served as somewhat of a pioneering study in this section. (101) It is probably one of the outstanding early studies of this type in the literature. Massachusetts has also contributed important impact studies related to 1) the Boston Outer Belt (Rt. 495) and its effect on the "wedge" communities, (120) 2) the central corridor (121) and 3) the proposed Connecticut Valley Route 91 study. (129)

Of equal significance to the 128 group of Massachusetts studies are the Connecticut Turnpike impact studies in progress since 1958. (127) The most recent Rhode Island study of significance is the Federal Hill area of Providence study completed in May 1964. (135)

All of the above studies are empirical, dealing in the main with non-user highway benefits. The sequence of Connecticut Turnpike studies include such topics as highway impact on population change and distribution, new manufacturing, labor market relationships, tourist facilities, real estate values, retail sales and professional services, recreation, and community response to improvement. The general research design followed a before-and-after analysis, using comparisons between a control group of non-turnpike towns with a group of turnpike towns.

The economic impact study of Massachusetts Route 128 is an exhaustive appraisal of the industrial and residential development which has taken place along Route 128, including an analysis of the effects of this development on adjacent communities. It investigates land use changes along the route, and the basic factors underlying those changes, and traffic generation characteristics resulting from the industrial development.

The Outer Belt (Rt. 495) study is to show the inter-relationships of highways and urbanization. This is due for completion in 1970.

The central Corridor Traffic Study of 1965 includes 55 cities and towns west of Boston and one-half million people. This study is more predictive of needs based on a study of present facilities and their impact and planning to reinforce desired objectives.

A good review of social and economic impact studies to April 1961 was prepared by the Massachusetts Department of Public Works and is available as Publication #185. (125)

All the impact studies have been intra-state in nature. It might be fruitful to consider an impact study in a region including more than one state. Also a model might be designed to be more predictive rather than a means of measuring impact after the fact.

B. Severance Studies

There are about four severance studies of the Vermont sequence counted as one study. Vermont is outstanding in Severance studies and has made its major contribution to research in this area. There are also studies in progress in Massachusetts (142, 143) and Maine. (141)

One of the most useful studies is the "Land Economic Studies of Properties Sold Subsequent to Partial Taking," Vermont Department of Highways. (144) It concerns guide lines for appraisers and other Highway Department personnel in estimating severance and consequential damages and special benefits caused by partial takings and highway construction. Vermont has also made a number of individual property case studies.

Future severance research should be coordinated for the New England states so that a wide variety of situations are covered and unnecessary duplication is avoided.

C. Business Relocation

There are three or four studies on business relocation. Probably the most important is the Boston study of 573 firms displaced by the Boston Central Artery. (146) There has been some research on the factors influencing business location in Rhode Island (148) and Connecticut. (145, 147) The influence of highway improvements on industrial development is a regional concern yet most of the research is confined to one area of one state. For example, the Long Island bridge proposal could have an impact on business location in several states.

D. Interchange and Land Use

There are two recent studies, one in Vermont (151) and one in Connecticut. (151) They include the type and extent of subsequent development in the vicinity of interchanges. A structural inventory was made prior to interchange construction and a continuing analysis is being made of changes in land value.

Here again typical interchange situations could be analyzed for the New England region if the research were coordinated.

E. Tourism

Ten studies have been made in New England and a comprehensive report of scenic roads in New England is being prepared by the U.S. Bureau of Public Roads. Vermont (164, 165, 166) and New Hampshire (157, 158, 159, 160) have been the most active in this area. Other research has been completed in Connecticut, (162) Rhode Island (155) and Maine. (163)

A joint study of the New England region might be desirable. This is especially important since the southern New England states are to some extent a traffic corridor to the vacation areas in the north.

F. Toll Roads

Each state toll road commission has an abundance of information but no study has been made of toll road relationship in New England.

IV. Financing And Cost Studies

There are six studies including one in Rhode Island, (169) one in Connecticut, (171) two in Maine (179, 174) and two in Massachusetts. (175, 176)

Maine, with two user tax studies, has made the outstanding contribution. Recently Massachusetts Institute of Technology has made two studies relating to vehicle operating costs. Many other states in the nation have made very comprehensive cost and financing studies. A recommended "Working Bibliography on Highway Finance" by Don Burch is available from the Virginia Council of Highway Investigation and Research, Charlottesville, Virginia.

The New England states, with the exception of Maine, have done relatively little work in this area. A comparative financing study might be useful.

V. Special Areas

A. Beautification

There have been no studies nor are there any in progress. The federal government is in the process of publishing a guide for highway beautification impact studies. It is expected that many such studies will be conducted in the near future. A regional study in this area is recommended.

B. Safety

Some studies have been made on safety, one by Harvard University on fatal collisions. This area is one in which much research will be forthcoming in the near future.

VI. General Recommendations

Research on the economics of highway transportation is receiving increasing recognition in the New England region. Federal and state agencies, private companies and institutions of higher learning in recent years have undertaken a broad but largely uncoordinated research program in this general area. Most of the research is of recent origin and most of it has been financed by federal funds.

Although most of the pertinent areas of research have been the subject of inquiry the coverage has been spotty in scope and quality. The basic problem seems to be a lack of coordination. To the extent that this has freed the states to tackle problems of immediate concern and has encouraged initiative and exploration in research design, it probably has been a fortunate development. However, as the research began to grow, unnecessary duplications have taken place and certain gaps in needed information have become apparent. And to the extent that the several New England states constitute a single economic region, matters of interstate concern have been neglected.

It is recommended that there be more coordination of highway research in the New England region. At the outset this may entail an analysis of the various agencies now engaged in highway research and the development of the means by which these agencies can be effectively drawn together.

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TASK FORCE REPORT F

A Survey of Regional Planning and Economic Research on Power and Fuel in New England

WILLIAM R. HUGHES

SECTION 1 EVALUATION

I. Introduction

Power and fuel are relevant to New England economic development in the following ways:

1) as industrial inputs which influence the cost and competitive position of New England in attracting and retaining industry

2) as components of the cost of living of New England residents

3) as users of land, water and other especially critical regional resources, sometimes with great external effects

4) in the case of power as a complementary output in multiple-purpose projects currently or potentially under consideration or Federal or state government development.

New England is a have-not region with respect to fuel and a high-cost region with respect to power. New England imports virtually all its fuel and pays a heavy transportation penalty relative to most other areas for most fuel. The major exception occurs in the case of foreign petroleum. Power costs are high, partly because of high fuel cost, partly because of the fragmented organization of the power industry and partly because of such factors as climate, terrain, congestion, and the demand characteristics of New England power users, especially low load factor and low usage.

II. Effect of High Power and Fuel Cost to Date

The major studies which have directly considered the historical impact of generally high power and fuel costs on New England's competitive position are those of the National Planning Association (21, 1954), the Council of Economic Advisors (3, 1951), Harris (9, 1952), and the Federal Reserve Bank of Boston (13, 1950). These studies are old but still relevant. A less analytical source of similar vintage and vein is the 1948 New England Council study (23). There is considerable overlap of statistics and generalizations among the first three studies, all of which take the same approach. They collate relevant published statistical information, summarize them in tabular and ratio form, and draw such inferences as this limited information permits. There is a close consensus of all sources on the following general points.

First, for most manufacturing industry and more especially for New England's existing and historical industrial mix, power and fuel are such trivial elements in cost* that even relatively large differences in these costs are not significant locational factors. Furthermore, the historical and expected trend in this proportion is downward.

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* Together they were 1.9 percent nationally in 1947 and 1.5 percent in 1958. The share for most New England industries is much smaller.

Second, high power and fuel costs have contributed significantly to the general absence in New England of heavy power and fuel-using industries (e.g. steel and aluminum). Whether realizable improvements in New England's power and fuel cost positions can contribute significantly to changing the competitive balance for such industries within the foreseeable future is an open question. Literature relevant to this point will be considered in parts IV and V.

Third, power and fuel may be of some significance to competitive position in some important New England industries. Examples are textiles (2.3 percent of value added in 1947) and paper (5.5 percent of value added in 1947). Most relevant sources, especially Harris (9) and CEA (3) tend to be ambiguous on this point and perhaps a little reluctant to be explicit on the implications of their data lest they be taken as a justification for complacency and fatalism with respect to the region's high power and fuel costs. The empirical evidence they cite is essentially limited to citing averages for census industries for such statistics as the ratio of power and/or fuel cost to value added or gross value. However, what is critical to competitive impact is the differential in power and/or fuel cost to each individual firm in relation to differentials in other costs and locational factors between himself and his competitors outside New England. (See Isard, (15, 1952). The extent to which non power costs are constant and unchangeable between regions is particularly relevant to the significance of the power cost differential. The Federal Reserve Bank of Boston study (13) did seek evidence directly relevant to competitive impact by obtaining questionnaire responses from a sample of 663 New England manufacturers. Thirteen percent of the respondents listed power as a competitive advantage (presumably because of captive hydro-electric facilities) while 24 percent said it was a significant disadvantage. It is hard to know what weight to give to qualitative replies of this sort. It seems likely that replies might be biased in the direction of overstating its significance, since a manufacturer sensitive to his competitive disadvantage might be disinclined to say that any handicap, however small, is not hurting him.

Fourth, all these sources agree on the following general implications of their findings for policy action - (a) power and fuel cost are not sufficiently strategic to regional development to be a primary aim of major public programs, and (b) that some reductions in these costs, worthwhile per se and for possible competitive gains in particular cases, can be achieved without massive efforts that may compete with more effective development programs.

An additional point touched upon in most studies and especially emphasized by the New England Council is that the availability and reliability of power are important requirements for attraction and retention of industrial customers. The FPC's blackout report (38, 1965) and its forthcoming report on power system reliability in the Northeast (to be issued this year) are therefore relevant to the region's competitive situation. Also relevant is the EEI report on the same subject (5, 1966).

III. Prospects for Cost Reduction

To what extent can New England's power and fuel costs be expected to fall? What measures would assist their reduction? For power, the major studies with respect to these questions are Shipman (29, 1962; 30, 1965; 31, 1964), FPC's National Power Survey (34, 1964), Wilkinson (40, 1966), Hughes (10, 1959) and, possibly, Poulsen (26, 1965). A notable gap exists in the literature with respect to comparable studies for non-power fuel.

The sources of New England's high power costs are more thoroughly explored in Shipman (29) than anywhere else. The Shipman study is basically an implification of the earlier NPA (21) approach of comparing New England costs with other areas or an account-by-account basis, adjusting for differences in load factor, fuel prices and other factors in order to isolate the sources of the differences observed. Shipman's principal policy conclusion is that a substantial portion of the cost difference might be eliminated by a more concentrated, rational ownership pattern in the region. All students of the problem recognize the importance of this factor but Shipman gives it more weight than others. His conclusions that merger would bring significant reductions in administrative costs, fuel prices, and, through lower rates, in items related to higher consumption per customer are at best tenuously supported by his analysis. McNulty's work on administrative costs (20.5, 1956) suggests that it might be wishful thinking to expect much saving in this category from consolidation. The main area stressed by Shipman is high generating costs as a result of small units and insufficient regional integration. In the book he takes a skeptical view of the potential for inter-system coordination, which he did not investigate directly, is expressed. Hughes' study of coordination notes approximately the same margin of inefficiency as Shipman from imperfect system integration circa 1960 but concludes much more optimistically with respect to the trend and ultimate potential for coordination.

In the several years since these two studies were completed, developments in coordination, some of which are reported in Wilkinson (40), have been very substantial. The capacity of new generating units on order, for instance, is catching up with other high-density areas. However, comparison of current New England plans with full scale integration, e.g., in the National Power Survey (34) indicates that a margin for improvement remains, and the circumstances surrounding the Northeast Utilities merger suggest some of the limits of coordination as an alternative to consolidation. Many, perhaps most, competent observers - including Hughes, Shipman, and Wilkinson - believe that industry initiative in this respect has received a significant assist from such sources of stimulation as the National Power Survey, Joseph Swidler's 1962 New England speech (32.5) (containing a good efficiency evaluation study in itself), the FPC's efficiency study of the New England Power Co. (37, 1964), Shipman's book, and latent competition posed by Passamaquoddy, Dickey, Canadian imports and other alternatives to local investor-owned supply sources. Promoting continued stimulation along these lines appears to be the least costly and most effective form of public policy action. The use of public project proposals as stimulation, however, involves the risk that they may be adopted even though the very private alternatives they may help stimulate turn out (post-stimulation) to have a significant efficiency advantage. It is this writer's view that this is probably happening in the case of the Dickey-Lincoln school proposal.

IV. Impact of New Power Supply Alternatives on New England's Competitive Position

In addition to the growth of coordination, new power supply alternatives give cause for belief that New England's industrial power rates may become more attractive to industrial expansion in New England.

Most important of these alternatives is nuclear power, which has already replaced conventional steam as the leading candidate in current decisions or additions to generating capacity. The most directly relevant sources are Shipman (30, 31), Wilkinson (40), Poulsen (26) and FPC (34). The pace of change since 1964 has been so rapid that the cost figures cited by Poulsen and Shipman for the early 1970's (based on company estimates) already look high. Wilkinson, the most currently informed source, suggests a base-load cost of 4.5 mills for the early 1970's (compared to 6.5 to 8 mills for the newer base-load thermal units currently in service in the region), and expert prognostications throughout the industry continue to be revised downward. Cost-cutting improvements can be expected to come rapidly as experience accumulates, since many expected improvements in nuclear costs (e.g. raising turbine efficiency to levels long since achieved for fossil-fueled units) do not involve major technical breakthroughs. It is reasonable to assume that New England will reach the national average in new base-load generating costs some time during the 1970's. It is also reasonable to assume that all cost estimates in existing published sources will be obsolescent in a matter of months and that any future EDA activities requiring up-to-date nuclear costs information should go directly to consulting firms, utilities, manufacturers, AEC, FPC and other expert primary sources. Published sources listed are primarily of analytical and historical relevance.

New England is unusually fortunate in the favorable location and very high quality of its potential pumped storage sites, which can provide very inexpensive peaking power in combination with nuclear-generated energy for pumping. With respect to generating costs, at least, New England's low load factor (57 percent versus the national average of 65) should no longer be a serious handicap.

Other active power supply alternatives, considered briefly in Wilkinson (40) and the National Power Survey (34), include base load conventional steam in New England or in mine-mouth plants in Western Pennsylvania, Canadian hydro, and hydro development in Northern Maine. All serve a useful competitive purpose, and it should be no surprise that the best of these alternatives come out very close to one another in view of the competition-matching policies of equipment suppliers, railroads and other sellers with respect to the large discretionary component in many of their prices and rates. All of these alternatives are still sufficiently promising that continuing attention to them should be encouraged. My own personal view, shared by many students of energy supply and transportation, is that both value of competition among this rich array of alternatives and the fluidity of the current competitive balance cannot be overstressed. If this is right, policy programs which encourage such competition rather than seek to forecast the winners or protect particular suppliers are in order. Residual oil quotas, analyzed by Rieber (27) and the New England Council's statement in National Fuels and Energy Study report (38, 1962), furnish an example of an anti-competitive policy which not only impedes cost reduction but also discriminates against New England. The other main area where attention to the impact of public policy on such competition is especially desirable is energy transport. For example, can the way be further smoothed for easy implementation and competitive pricing of integral and unit train developments? My survey of the literature has excluded fuel transport as lying within the domain of the transportation specialists, but the importance of this area to power and fuel costs needs to be stressed, since transport charges comprise a large proportion - approximately half in the case of coal - of current delivered fuel prices in the region, and any reduction in such costs results in a competitive gain for New England relative to areas closer to fuel sources.

Remaining hydro sites in New England with economic potential are too limited and costly to supply more than a very minor share of future load growth. Literature most relevant to the sites with an active possibility of development includes Shipman (28, 1964), Interior (33), Main (1, 2) Jackson-Moreland (16, 17), Wilkinson (40). There is a fast-growing literature here in the limited availability category, and my list is known to be incomplete. For objectivity, perspective, and current relevance Shipman and Wilkinson are the most reliable. The other sources, while competent and informative, press the respective viewpoints of their sponsors and show inconsistencies on relevant particulars. As the main inconsistencies are well-exposed by Shipman and Wilkinson, the remaining sources are not specifically reviewed here. Shipman's initial favorable verdict on Dickey (the only big New England hydro project under active current consideration) is contingent on a power benefit figure of at least 30 mills per kwh at 5 percent capacity factor or 18 mills at 20 percent capacity factor for pumped storage serving Southern New England loads. In an addendum written in 1964 he readjusts these figures moderately downward and finds Dickey submarginal with Cross Rock (now abandoned in favor of Dickey) still economic by a slight margin using Federal criteria. However realistic these figures were at the time of writing, they are far in excess of the current expert consensus on costs. For instance, Wilkinson's (40) estimate for pumped storage at 25 percent capacity factor is 8.1 mills, equivalent to no more than 10.1 mills at 20 percent capacity factor. In his recent address to the Regional Science Association, Wilkinson suggested that he would revise this figure downward if he were writing today. With continued passage of time, the dynamics of technology and greater abundance of well-located sites should increase the advantage pumped storage over conventional hydro. From the standpoint of power benefits and costs, it is desirable that the final decision on Dickey be based on an up-to-date appraisal of the cost alternative sources of supply, particularly pumped storage (e.g. at Northfield Mountain).

Canadian hydro - particularly the Hamilton Falls alternative - is briefly discussed in the Wilkinson and Shipman sources most recently cited. Wilkinson's perspective (40) is perhaps the best available at this uncertain date. There are also a couple of feasibility studies. Available evidence is scanty, but evidently this alternative is very close to the margin of competitiveness and deserves continued attention.

V. Impact of Prospective Cost Reduction on New England's Competitive Position

The general consensus is that New England's handicap in power costs will be reduced but not eliminated during the next 10-20 years.

Shipman (31) is the only writer who analyzes the implications of nuclear power for New England's competitive post. He makes two main points. First, nuclear power *per se* does not affect New England's high cost of transmission, distribution, and administration. His estimated maximum advantage of 1 or 2 mills, presumably for *circa* 1970, over current (1964) base-load costs would have little impact on average retail rates in the region, especially since rates primarily reflect the embedded cost of older equipment. Second, nuclear is having, and will continue to have, favorable integration-promoting effects which may be as significant as its direct impact. This stems principally from very great scale economies in nuclear units and the economics of tying them together strongly over large areas for reserve savings and integration with large-scale, multiple-system peaking sources. Wilkinson, (40), has made a more recent and optimistic estimate based on all cost elements in a likely capacity expansion program. Averaging the costs of new capacity with old, he arrives at a 19-25 percent reduction in average retail power costs between 1964 and 1972.

The National Power Survey does not include cost estimates for New England *per se* but its estimate for cost reduction from 1962-80 the Northeast (including the mid-Atlantic states) is 30 percent compared with 27 percent nationally. The implicit percentage reduction for New England is significantly larger than for other Northeast areas.

From the standpoint of attracting large industrial loads, the outlook for power costs is more favorable. New England's generally high rates are closely related to the use characteristics of its customers: especially low load factor and low consumption. The cost of adding a high-consumption, high-load factor industrial customer, typically at high delivery voltage close to generation is largely composed of generating cost, the area in which New England is approaching the level of the rest of the country. Existing rate schedules reflect this fact and might reflect it even more strongly if the explicit role of marginal cost criteria were greater. Furthermore, a very large power user seriously negotiating for a New England site may obtain power slightly below its marginal cost. At present, a 1 megawatt, high load factor customer in New England pays an average of some 10-15 percent above the national average, whereas the average cost of power to all customers is some 25-30 percent above the national average (29% in 1962).

The closing of the gap between New England and lower-cost areas is concentrated in these costs - generating and transmission - relevant to large-scale service at high voltage.

This factor, combined with the availability of tidewater sites, the regional market, and other favorable locational factors, may open New England to consideration by heavy power using industries. The problem of the 1970's may not be one of inability to attract big power users but whether and on what terms, New England should welcome the influx that might develop. The possibility of tidewater power - industrial complexes making use of by-product process heat from nuclear plants is worth exploring. The observations in the 1952 study by Arthur D. Little (20) on petroleum refining are suggestive. See also Joshi (19, 1961).

VI. Available Literature on Fuel for Non-Power Users

Fuel studies closely related to New England are scarce outside the fuels-for-electric generation field. Aside from the sources mentioned above with respect to residual oil, the principal regional studies of current relevance are those of Eisenmenger (6, 1959), and Federal Reserve Bank of Boston (11, 12).

The remaining literature, non-regional in orientation, is dispersed over so many quasi-relevant areas that I have confined bibliographic listings to a few major studies. These, especially the Senate report (38), Schurr (27. 5), and the fuel reports in Part II of the National Power Survey have extensive bibliographies providing leads into relevant literature.

Eisenmenger summarizes historical use patterns for major fuels in the region and project demands and price to 1970. His forecast was for a slow general rise in fuel prices during the 1960's.

The Federal Reserve studies are summarized in one article (12) in 1957 and another (11) in 1961, both in the New England Business Review. The first of these is a general survey of sources, uses, cost significance, and projected use of industrial fuel in the region. The 1961 article is in two parts: the first, on residual oil, summarizes the Rieber study previously mentioned (27). The second, focusing primarily on crude oil import restrictions, reviews the end-use patterns of petroleum in the region and notes the very high cost (estimated at $217 million in 1961) incurred by the region because of such restrictions.

VII. Major Gaps in the Literature

A. Rate Structure and the Economy of Energy Use

To date, the question of the cost of energy to New England customers has been studied only from the standpoint of the general levels of electric power costs, fuel prices, and transport costs. There is need for research into the possible impact of rate structures in affecting the efficiency and total cost of the overall pattern of energy use in the region. To what extent, for instance, are seasonal and time-of-day patterns of gas and electric rates consistent with their economic costs? To what extent would use patterns change as a result of making rate structure more consistent?

B. Spillover Effects of Power Development

An area badly neglected by researchers competent in the power field concerns the heavy demands of power on the use of land, water, shoreline sites and other resources and the side effects of power network expansion on the appearance of the environment and on the use of especially valuable pieces of land in an increasingly congested region. Hydroelectric projects have long been analyzed from this standpoint, but at present, serious land use questions involving transmission right of way and choice of thermal sites have not received systematic investigation from an independent professional or public interest standpoint. Projected load growth implies very great increases in EHV transmission, which is highly visible, is unattractive to the eyes of most non-engineers, and requires large right-of-way clearances. Disputes experienced thus far (e.g. over Consolidated Edison's Cornwall project or the current ruckus over the Connecticut river crossing at Haddam Neck) are probably only the barest inkling of what is likely to come. Utility opposition to undergrounding at such locations seems to be based not so much on the cost of the particular line segment (usually greater than 8-10 times that of overhead lines) but on the fear that costs might be driven up substantially by a general insistence on undergrounding. The relevant choices need to be reviewed in terms of over-all system development rather than in the chaotic, charged atmosphere of a series of local crises. A study of the relevant choices and costs involved might pave the way to consensus on priorities and a more orderly process of decision-making. It would also be useful to examine the role of present and proposed taxation patterns in influencing such choices. To the extent that the well-being of New Englanders and the region's economic growth depend on an attractive environment for its human resources, this aspect of power costs is as relevant to regional development as the costs which are included in power rates.

C. Future Research on the Role of Power and Fuel Costs

Existing studies have pushed inferences from regional averages and aggregates about as far as is practicable. Future work on the role of power in the regional competitive position should, in addition to keeping abreast of possibilities for cost reduction, focus on getting direct specific information on critical industries and locations. A critical industry is one which we expect a priori to be sensitive to power and fuel in location choices. A critical location - within and outside New England - is one which lies close to the competitive margin for the industry under consideration. Such work is perhaps best incorporated in studies oriented toward over-all prospects for such industries rather than toward power per se.

D. Expiration of Hydroelectric Licenses

Beginning in 1970 FPC licenses on many New England hydroelectric sites will expire. Whether Federal acquisition, renewed licenses or other disposition occurs, there is a great opportunity for encouraging recreational development and other non-power benefits. If the possibilities are studies in advance from a regional interest viewpoint, the optimum use of these sites is more likely to be realized than otherwise.

E. Lack of Systematic Study of Fuel Use

There is a glaring lack of published, accessible studies giving basic analysis of regional use of the fuel for non-power purposes: demand and cost projections, end-use breakdowns, analysis of interfuel and energy competition, and the role of fuel in industrial competition suggest that this is a glaring gap area. I suspect that more bibliographic digging might uncover relevant studies of the non-published, limited availability variety, but the general need for accessible studies is clear.

F. Major Research in Progress

Two studies currently underway are particularly relevant to the questions discussed in this survey.

Arthur D. Little, Inc., has begun a study of the future of coal in New England's power generation for the Office of Coal Research of the U.S. Department of the Interior. The study will inevitably rake in the full range of alternative energy sources and transport modes.

William R. Hughes (now at Wesleyan, next year at Boston College) is doing an analytical study of the growth and effectiveness of electric utility coordination since 1950, with special attention to New England: sponsored by Resources for the Future, Inc.

I. Major Sources

1. Charles T. Main, Inc. Appraisal of the Upper St. John River Hydroelectric Development, for the Electric Council of New England, July 1965. LC

2. Charles T. Main, Inc. Review Passamaquoddy Tidal Power Project and Upper St. John River Hydroelectric Development. Electric Council of New England, May 1965. LC.

3. Council of Economic Advisers. "The New England Economy" Washington: 1951. Concludes power and fuel not a major influence on New England's competitive position but that it may be of significance in individual cases where other factors balance. Advocates investigation of hydro development. Analysis confined to citation of published statistics with little processing or refinement.

4. "Crude Oil Import Restrictions" New England Business Review November 1961. Reviews oil end-use pattern in New England and estimates absence of restrictions on crude oil imports would have saved New Englanders $217 million.

5. Edison Electric Institute, Report on Power System Reliability (title approximate), 1966. Available on request. Contains recommended steps for improving power system reliability. Good indicator of what power industry is likely to do on own initiative to reduce probability of repeat of November 1965 blackout.

6. Eisenmenger, Robert W. Fuel and Energy Use in the 1960's. Research Report of the Federal Reserve Bank of Boston, 1970 projection No. 9. Contains projections, descriptive background and basic historical data, for each major fuel type, some analysis of impact of residual oil import quotas, and moderately pessimistic prognosis of slowly rising fuel costs for regions.

7. Electric Council of New England, Review of Report to the International Joint Commission by the International Passamaquoddy Engineering Board titled "Investigations of the International Passamaquoddy Tidal Power Project dated October 1959. Prepared for the Electric Council by Charles T. Main, Inc. LC.

8. Electric Council of New England, Report--Passamaquoddy Tidal Power Plant as Proposed in the Report to the President by the Secretary to the Interior, dated July 1963, Boston, 1963. Prepared for the Electric Council by Charles T. Main, Inc.

9. Harris, Seymour E. The Economics of New England; Case Study of an older Area. Cambridge, Harvard University Press, 1952.

Agrees with other observers that power and fuel not crucial factors in New England's competitive position but that it may occasionally be significant. Urges federal hydro development. Little evidence of analysis.

10. Hughes, William R. "The Efficient Organization of the Privately-Owned Electric Utility Industry in the United States. Cambridge: Widener Library, Harvard University, 1959.

Contains analysis of efficiency aspects of inter-system coordination. General in orientation but contains several chapters which concentrate on coordination in New England in the 1950's, comparing it analytically with a one system alternative. Concludes that cost of electricity at retail might be reduced by 5 or 6 per cent at most from improvements in coordination *per se* and predicts continued improvement in coordination. NA

11. "Import Restrictions and Fuel Costs." New England Business Review, June 1961.

Essentially a summary of findings of the Rieber study on residual oil.

12. "Industrial Fuel Costs in New England." New England Business Review Federal Reserve Bank of Boston. August and October 1957.

Reviews main sources and uses of industrial fuel, comparative costs, industries in which fuel principally used, and future trends.

13. "Industrial Power Costs in New England." Monthly Review, Federal Reserve Bank of Boston, June 1950.

Report of most direct inquiry made to date on impact of power cost or competitive position of New England manufacturers. Still relevant. Particularly useful is survey of opinions of 663 New England manufacturers on importance of power costs: 13% listed it as an important advantage. 24% as an important disadvantage, 55% listed it as of little importance.

14. International Passamaquoddy Engineering Board, Investigation of the Passamaquoddy Tidal Power Project; report to the International Joint Commission, Washington and Ottawa, October 1959.

A detailed engineering-economic evaluation. (Copy can be reviewed at Harvard Water Resources program.)

15. Isard, Walter and Vincent Whitney. "Atomic Power and the Location of Specific Industries." in *Atomic Power: An Economic and Social Analysis*. New York and Toronto: The Blakiston Company, 1952. pp. 73-87.

Brief, but cogent analysis of factors relevant to role of power costs in industrial location. Pessimistic conclusions on nuclear power cost are out of date and based on faulty evaluation of scale economies.

16. Jackson and Moreland, engineers. *Review of Benefit-Cost Ratio: Dickey and Lincoln School Projects and Associated Transmission System*, for Electric Coordinating Council of New England. LC.

17. Jackson and Moreland, engineers. *Review of Benefit-to-Cost Ratio per Supplement to July 1963 Report, Passamaquoddy and Upper St. John River Hydroelectric Power Development*. For Electric Coordinating Council of New England, December 1964. LC.

18. Jersey Central Power and Light Company. *Report on Economic Analyses for Oyster Creek Nuclear Electric Generating Station*, 1964.

Gives cost information underlying decision to develop commercial scale nuclear in area having access to fuel costs much lower than New England. Most detailed source available on specifics going into a major nuclear adoption decision. LC.

19. Joshi, Arun, Nuclear Process Heat and the Paper Industry with special reference to New England Federal Reserve Bank of Boston, Research Report No. 12, Boston, 1961.

20. Little, Arthur D., Inc. *A Survey of Industrial Opportunities in New England*, report to Federal Reserve Bank of Boston.

Discusses prospects for additional petroleum refining capacity in New England: discussion relatively superficial, confined to 6 pages; conclusion optimistic for refinery to serve local market.

20.5 McNulty, James. "Administrative Costs and the Scale of Operations in the United States Electric Power Industry." *Journal of Industrial Economics*, November 1956.

Regression analysis of large cross section of privately owned utilities suggests close proportionality between administrative costs and company assets. Relevance to New England is that the conclusions imply that high administrative costs in region may not be due to size of firm so much as low load factor, low consumption per customer, internal organizational factors and management policy.

21. National Planning Association "The Economic State of New England." New Haven, Yale University Press, 1954.

Includes general descriptive treatment of fuel and power competitive situation. Contains cost comparison of New England power costs with other regions on adjusted-accounting data basis later used by Shipman on more extensive scale.

22. National Planning Association Committee on New England Water Fuel and Energy in New England, 1953.

Listed in Boston Fed. Quarterly inventory, but not located. Probably incorporated in 1954 NPA report.

23. New England Council, Power in New England, Boston, 1948.

Study by Charles T. Main, Inc. engineers; broad descriptive survey of load characteristics, capacity and demand data and forecasts, power cost comparisons with other regions, hydro availability, etc. Major conclusions: 1) possibilities for lowering costs relative to other regions are limited, especially in case of hydro 2) power reliability important to competitive position at its small share (less than 2 percent) of value added in New England industry makes its cost a negligible competitive factor.

24. New England - New York Interagency Committee "Land and Water Resources of the New England-New York Region" Washington, 1957.

Remains broadest and most consistently defined inventory available of hydroelectric potential of region.

Demonstrates generally limited role of hydro in future regional power supply.

25. Olds, Leland. "Electric Rate and Unit Cost Comparisons Between New England, the United States as a whole and the United States excluding New England" Memorandum submitted to the Council of Economic Advisers. January 1953.

Points out importance of filtering out inter-utility sales in making high-volume rate comparisons between New England and other areas. OP.

26. Poulsen, Roy "New England Power Economics" Land Economics, August 1965.

Broad descriptive review of power supply sources and costs. Estimates 5.8 mill 500 MW base-load nuclear in 1971. Already outdated by available cost information on Connecticut Yankee and other projects. Available.

27. Rieber, Michael. Residual Oil Import Restrictions. Federal Reserve Bank of Boston Research Report No. 16, Boston, 1961.

Extensive discussion of residual oil in New England economy Analyzes impact of import restrictions on fuel costs in New England. Concludes that, even measured conservatively, restrictions imposed in 1959 cost New England customers between $10 and $20 million from July 59-July 60. Also examines impact on coal industry, defense etc.

27.5 Schurr, Sam H. and Netschert, Bruce C. Energy on the American Economy 1850-1975. Publication for Resources for the Future, Inc. by the Johns Hopkins Press, Baltimore, 1960.

The standard comprehensive references on energy sources and projections.

28. Shipman, William D. Alternative Proposals for Electric Power Development in Maine, Research Report No. 28, Federal Reserve Bank of Boston, 1964.

Improves upon evaluation methods used in Passamaquoddy report in its choice of alternatives and consideration of Dickey and Quoddy increments separately as well as combined. Concludes negatively on Quoddy but finds Dickey or alternative St. John projects to be favorable sources for Maine. This, however, is contingent on 1) use of best existing Maine thermal baseload as alternative rather than nuclear, an assumption called severely in question by the Maine Atomic proposal and 2) high and outdated figures for Southern New England peaking costs.

29. Shipman, William D. An Inquiry into the High Cost of Electricity in New England. Middletown, Wesleyan University Press, 1962. The most comprehensive source available on New England power costs. Principal approach is an account-by-account comparison of historical cost data (adjusted where possible for load factor, taxes and other factors according to hypothetical assumptions about consumption per customer and other factors. Conclusion is that much of New England's cost differential is not attributable to fuel prices, climate, and other unavoidables. Attributes a major share of the differential to fragmented organization of the industry and argues for consolidation of region's systems.

30. Shipman, William D. "The Impact of Nuclear Power on New England" Journal of Industrial Economics November 1965.

Reviews the cost of newest (pre-1965) nuclear and conventional plants. Concludes direct savings of only 1 or 2 mills/kwh in over-all regional power costs -- Time context presumably circa 1970 but not clear. Infers nuclear will assist rationalization of regional industry structure. Potential forming low offpeak rates for load-building as a result of low operating cost. Major effects held to be largely in these indirect areas.

31. Shipman, William D. "Some Economic Implications of Nuclear Power Generation in Large Central Stations" Land Economics, February 1964. Reviews general impact of nuclear capacity on overall electric system costs and specifically discusses its potential interregional competitive impact, using New England as his prime example. Extensive references to source materials.

32. Sutcliffe, Frances E. Natural Gas for New England, Master Thesis, Dept. of Economics, U. Mass., 1955. Not available. Not examined.

Analysis introduction of natural gas to New England and questions whether claims of ensuing economic benefits were justified. NA.

32.5 Swidler, Joseph. Goals for the Electric Power Industry. Address to Electric Council of New England, October 1962.

Good source on efficiency comparisons between New England and other regions--particularly with respect to plant scale, thermal efficiency, and retirement policy. NA.

33. Udall, Stewart L., Secretary, Department of the Interior. "The International Passamaquoddy, Tidal Power Project and Upper Saint John River Hydroelectric Power Development" (Report to President John F. Kennedy) July 1963.

Report recommends Passamaquoddy-Dickey combination as a peaking source for New England, based on controversial (and, to most experts, faulty) assumptions with respect to cost of alternative sources of peaking power and harmonious timing of Quoddy-Dickey capability with peaking characteristics of Southern New England loads.

34. U.S. Federal Power Commission. "National Power Survey" (A Report, Part I,) U.S. Government Printing Office, Washington, October 1964.

General guidelines for coordinated development of power industry to 1980. Contains load projections and possible coordinated capacity additions for New England. Predicts 30 per cent reduction in retail cost of power to customers in Northeast region (presumably a higher percentage in New England) compared to 27 per cent nationally from 1962 to 1980.

35. U.S. Federal Power Commission. National Power Survey (Advisory Reports Part II) U.S. Government Printing Office, Washington, October 1964.

Specialized reports on a variety of technical subjects connected with the National Power Survey. Reports No. 18 and 21, dealing with fuels for electric generation, are useful for background on fuel supply and for extensive attached bibliographies.

36. U.S. Federal Power Commission, *Northeast Power Failure*, Report to the President, December 1965.

    Reviews reliability of the New England grid and suggests ways of improving reliability. More detailed studies and recommendations on reliability will be reported in an FPC publication forthcoming sometime in 1966.

37. U.S. Federal Power Commission Bureau of Power *Staff Report on Electric Utility Operations and System Performance of New England Power Company, 1960--1967.* Washington, Federal Power Commission, *June 1964. (Mimeographed)*

    A detailed, largely descriptive, critical survey of company operations. While cautious about drawing sharp conclusions, report questions Nepco efficiency with respect to 1) high transmission costs per kwh, reflecting possible overcapacity, 2) relatively high labor costs at Salem Harbor Station and hands out cautious praise to Nepco for efficiency--improving actions in plant retirement policy, intersystem coordination, efficiency of such new installations as Brayton Point and many other areas. LC.

38. U.S. Senate, Committee on Interior and Insular Affairs, 87th Congress 2d Session *Report of the National Fuels and Energy Study Group on an Assessment of Available Information on Energy in the United States,* Sept. 21, 1962. 499 pages.

    A broad descriptive survey with much useful background information and extensive reference. Bibliography on earlier studies in fuel and energy field. Good statement by New England Council on residual oil import quotas.

39. Webb, Eric Norman "Hamilton Falls Hydro-electric Scheme" published by Institution of Civil Engineers, London, 1958.

    Engineering-economic feasibility study. Concludes favorably on engineering and possible economic feasibility of Hamilton Falls scheme. LC.

40. Wilkinson, John "New England's Power Developments: Parts I and II The Private Utility Industry." *New England Business Review*, February and April 1966.

    Parts I and II together constitute most balanced and informed published survey yet made of New England Power Supply alternative for late 60's --early 70's. Suggests baseload costs under 5 mills for early 70's with extremely favorable pumped storage costs at such sites as Northfield mountain. Also suggests that Dickey power will be higher than alternative pumped storage-nuclear combinations.

II. Minor Sources

41. Arris, George H. New England Water Power, Myth or Fact, reprints from Providence Journal, 1949.

    Useful only for historical description. OP.

42. Edison Electric Institute Report on the Status of Interconnections and Pooling of Electric Utility Systems in the United States, 1962.

    Contains description of interconnections and coordination arrangements in New England. Supplement in 1963.

43. Edlund, M. C. and P. F. Schutt "The Future of Nuclear Breeders" Nucleonics June 1963.

44. "Electric Power - An Indicator of Industrial Activity" New England Business Review. February 1965.

    Good discussion of electric power use--patterns in New England manufacturing. Indicates trend of closing rates and rising electrification relative to national trend has already begun.

45. Miller, Ernest E. The Economic Effects of the Hydro-Electric Reservoirs in the Housatonic Valley. Thesis, Graduate School of Banking, Rutgers University. Not available. Not reviewed.

46. Farnsworth, Frank A. "Some Aspects of the Development of the Electric Utility Industry in New England, 1924--1949." Cambridge: Widener Library, Harvard University, 1952.

    Illustrates the structural confusion from which present industry organization in New England has evolved and factors influencing present structure. NA.

47. Federal Reserve Bank of Boston, Atomic Energy in New England, Parts I and II, Monthly Review, August-September 1955.

    Reviews report of New England committee on Atomic Energy. Report itself not located but some copies are likely to be in libraries in region. Very broad and preliminary on coverage. Power statements limited to obvious and general.

48. Fisher, Franklin and Carl Kaysen *A Study in Econometrics: The Demand for electricity in the United States*, Amsterdam, North Holland, 1962.

Long run elasticity of demand virtually zero in some residential uses, others ambiguous (water heating). Space heating excluded. Industrial elasticities found highly variable by industry. Where elasticity exists, it is likely to be conditional upon critical competitive zone for substitutes for particular uses. Implies that power use in New England would not be greatly stimulated by rate changes.

49. Hughes, William R. "Short-Run Efficiency and the Organization of the Electric Power Industry." *The Quarterly Journal of Economics*. (Vol. LXXVI, No. 4) November, 1962.

Reviews operating coordination of New England utilities as of 1961.

50. Independent Natural Gas Association of America, *Comparison of Season Househeating Costs for Gas, Fuel Oil, Coal and Electricity* - 1964, Washington, 1965.

51. "Industrial Opportunities in New England - Atomic Energy" *Monthly Review* Federal Reserve Bank of Boston, October 1952.

General and sketchy in orientation.

52. Landsberg, Hans H., L. L. Fischman, and J. L. Fisher, *Resources in America's Future*, Johns Hopkins Press, 1962.

53. Ling, Suilin, *Economies of Scale in the Steam-Electric Power Generating Industry*, Amsterdam, North Holland, 1964.

Best general survey on its subject. Reviews Engineering, analytical and econometric literature and explains analytical scale relationships between units, plants, and systems. Bibliography and footnote references to most major sources on subject.

54. M. Cloud, Leland W. *Comparative Costs of Competitive Fuels. A Study of Fuel Consumption by Manufacturing Industries in the United States.* University of W. Va. Bureau of Business Research, 1951. Not reviewed.

55. Mallenbach, Philip *Civilian Nuclear Power: Economic Issues and Policy Formation* Twentieth Century Fund, New York, 1963.

Excellent background volume on policy issues and programs involved in development of nuclear power. Cost estimates and discussion of economic prospects largely out of date.

56. Massachusetts State Planning Board, *Cost of Electric Current and Illuminating Gas, as Reported to Department of Public Utilities*, 1952, 1953.

Not reviewed. Availability unknown.

57. "New England's Last Frontier: Parts I-III Competing Proposals for Power Development" *New England Business Review*, November 1964-January 1965.

Broadly reviews hydro proposals for Northern Maine. Available in reprint form.

58. New England's Power Problem, *A Conference on the Economic Development of the New England States* Washington, D. C. March 1949. Not reviewed. Availability unknown.

59. Uhl, W. F. "Power Resources for New England" Charles T. Main, Inc., Boston, 1952.

Evidently a precis of New England Council study. Not reviewed.

60. Resources for the Future, Inc. *Water Demand for Steam Electric Generation*, 1966.

Just out. Therefore not reviewed. Relevant to thermal pollution of New England rivers and to power plant siting problems.

61. Rhode Island Development Council, *Industrial Electricity in Rhode Island*, 1952.

Reviews basic data comparing Rhode Island industrial electricity rates, consumption, fuel prices, taxes, and share of power on manufacturing costs with other states. Relatively unique in detail of breakdown for particular industrial operations. OP.

62. Smith, Lincoln. "The Power Policy of Maine" Berkeley: University of California Press, 1951.

Strictly of historical interest. Reviews history of Fernald Law prohibiting hydro exports.

63. U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce *Industrial Structure of New England*, Washington, 1930.

Outdated but good for historical comparisons of basic power and fuel data.

64. U. S. Department of Interior *Supplies, Cost and Uses of the Fossil Fuels*, Washington, 1963.

65. U. S. Federal Power Commission, *Industrial Electric Power* 1939-1946, Washington, 1946.

Old but gives data, never repeated on supply and use of electricity in manufacturing and extractive industries; kwh use broken down by generation, purchases, and 2--digit industry classification. OP.

66. U. S. Federal Power Commission, Power Market Survey: Power Requirements in the Northeastern Region, New York, 1951.

Updates 1949 study. OP.

67. U. S. Federal Power Commission: "Power Market Survey-Power Requirements in New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island." New York, 1949.

Largely out of date, but presents a still-valid survey of general regional load characteristics. OP.

68. U. S. Federal Power Commission, *Report on New England Fuel Situation with Respect to Electric Utilities in the Area*, Washington, 1941. OP.

69. U. S. Federal Power Commission, Bureau of Power, New York Regional Office: "Staff Report on Interconnection and Coordination Study," Power Supply Area 2, New York, 1958.

Projected capacity plans to 1970 on assumption of region-wide coordinated planning. Obsolete by the time published in that it proposed a more conservative level of integration than was already embodied in industry planning by that time. OP.

TASK FORCE REPORT G

A Survey of Economic Research on Water, Non-Fuel Minerals, Agriculture and Forestry in New England

ROBERT H. FORSTE
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SECTION 1 EVALUATION

I. Introduction

The purpose of the project, of which this report is a part, is to survey and evaluate the available literature on regional planning and economic research in the New England region. This evaluation and survey should aid in the determination of needed supplementary research and the gaps existing in knowledge concerning New England's development needs. In addition, annotated bibliographies of the literature are compiled as a part of the report.

This particular report is concerned with an evaluation of regional planning and economic research in the areas of water, non-fuel minerals, agriculture and forestry. An extensive annotated bibliography is included as a final section of the report. The objective of the evaluation is to assess the research and planning activities concerned with the development and utilization of the water, mineral, agriculture and forest resources of the region. In addition, the report will indicate some needs and directions for future work in these areas.

II. General Review

A review of the literature reveals some deficiencies with regard to specific problems and geographic areas. However, it also reveals the extensive amount of work that has already been done by land-grant colleges, state and federal agencies and others.

The overall view of the research work conducted in the past gives a first impression of comprehensiveness. Further examination indicates some shortcomings in specific subject areas, in methodology and in operations.

A major problem seems to center on the apparent lack of overall coordinated effort on the part of the various state, federal, and local agencies conducting research on the problems relating to water, mineral, agriculture, and forest resources. These four resource areas are interdependent and use and development of one resource affects to a greater or lesser degree use and development of the others. Another aspect of coordination relates to the duplication of efforts among the various agencies.

These and other factors indicate a need for "planning for planning." It seems imperative that to avoid unnecessary duplication and possible conflicts due to differing objectives that some regional coordination of the research activity be instituted.

Research methodology constitutes another problem for the regional research and planning activity. Although there are some notable exceptions, the majority of the studies have used rather elementary research techniques.

Some, of course, are applicable and adequate for the problems to which they are addressed. Others are clearly not. For example, simple trend analysis has proven to be quite inadequate for accurate planning. New techniques for projections and planning activities need to be developed and some of the more sophisticated techniques already in use need to be applied to the problems of projection and planning.

Another need relates to use of common methods and technology by agencies conducting studies which are complementary. Instead of comparable techniques, we find adjoining states or communities using different methods in an effort to find answers to the same questions. Coordinated planning requires that the method of analysis be comparable and results presented in a similar form. Comprehensive plans for a state or region cannot be effectively and validly implemented unless the results for sub-regions or states within a region were derived in a similar manner and presented in the same form.

III. State, Regional, and Sub-Regional Studies

A number of significant pieces of work can be found under the heading of regional, state and sub-regional planning. The work done in Connecticut and Maine appears to be outstanding both in depth and comprehensiveness. In addition, three regional studies can be singled out as very important contributions to knowledge and as valuable tools for planning agencies. These are: the A. D. Little Projective Studies, the series prepared by the Resource Development Economics Division of the USDA, and the NENYIAC studies.

The A. D. Little Projective Studies were prepared as part of a comprehensive planning program for the development and conservation of natural and water resources in the New England region. The report contains three sections: 1) the region, 2) the states, and 3) the sub-state areas. The purpose of the studies is to furnish guides for appraising future growth in relation to water requirements. Population and employment estimates for future time periods form the backbone of the report. Included are projections of employment in forestry, agriculture, mining, and fisheries.

The studies of the Resource Development Economics Division of the USDA are concerned with agricultural projections for the New England region. The first report in the series concentrated on agricultural change and development in the entire region. The second report dealt with changes and projections for individual states in the region. The third report concentrated on shifts and specialization occurring in agriculture within sub-areas of the states.

The objective of the NENYIAC study was to inventory the natural resources in the region and to develop integrated plans for the maximum development, utilization and conservation of the resources in each river basin. Included are projections of needs for the future and action programs for insuring that water of adequate quantity and quality will be available for the population of the region in the future. The sections dealing with land use and planning for agriculture and forestry are particularly relevant.

Little fault can be found with the objectives and purpose of these studies. One difficulty that does seem apparent revolves around the problem of accurately forecasting population in the future, and since most of the determination of future needs is based on anticipated demand of a growing population, this becomes the key issue in assessing the adequacy of the proposals. The NENYIAC studies appear to have seriously underestimated population growth. For example, the projection was made for a total U. S. population of about 180 million in 1965, while the actual figure has proven to be nearly 200 million.

It soon becomes apparent when reviewing the literature that many studies have been conducted simultaneously. That is, a regional study including a given state would be in progress at the same time as a study of that state conducted by another agency. A similar situation seems to exist with respect to sub-regional studies and state studies. It is not evident that these simultaneous efforts were coordinated nor even that they had common objectives, although it is reasonable to assume that they would be very similar. Coordination of study and planning efforts would be highly desirable to insure that needless duplication of activity is not carried on. Regional coordination would also aid in establishing common purposes and objectives for individual groups and agencies carrying on specific research work.

Another point that strikes the reviewer is the tremendous amount of duplication of basic data. Since a major portion of each of these studies consists of a body of information on the nation, the region and the state, this material is duplicated in every report. It seems wasteful in research efforts to continue to duplicate the efforts of others. Therefore, there is a need for a central data gathering agency if such an effort would prove feasible and fruitful. There also seems to be a need for greater communication among the various agencies conducting studies in the region.

Another need relates to the frequency with which a study or plan needs to be reviewed and updated as economic conditions change. Plans for periodic review and revision should be developed and incorporated in the planning process. This would eliminate some of the duplication of previous work often observed.

IV. County and Community Planning

Most of the county and community development plans conducted under the auspices of HHFA 701 programs and under the RAD programs include a description of agriculture in the county and community. These plans typically provide some data on the history of agriculture in the area under consideration and presentation of time series data on the number of farms and trends in production for the various agricultural products. Most plans offer some recommendations relating to agriculture in terms of furthering the overall development of the community or county.

There seem to be some limitations to the procedures generally used in the county or community study. Projections are generally based on a simple trend line using a relatively undefined period of time. Others develop aggregate demand for agricultural products in the area under consideration based on projections of population, incomes, or employment. Then agricultural production for the area is projected in direct proportion to these projections. Neither approach takes into account the underlying economic forces which cause shifts among areas and regions in agricultural production; nor do these methods recognize the specialization which is occurring on an interarea and interregional scale. Many recommendations do not seem to face up to the realities of comparative advantage existing among areas and regions in the production of specific agricultural products.

In view of this characteristic approach, it seems evident that the most valid recommendations made in these studies are those relating to conservation and land use practices in the area under consideration. Others relating to expansion in production of certain commodities or construction of new marketing facilities appear to be of doubtful validity. Efforts in planning and development in agriculture and the necessary research for such planning must begin on the regional level, taking into full consideration the competitive relationship with other regions before extending it to the local level and not the reverse.

V. Water

A. Watershed Development and Planning

Through the establishment of Water Resources Research Centers at land-grant universities by Congress in 1965, a concentrated attack has begun on problems of water pollution, law, economics, management, and other aspects relating to water resources. Much work has begun in the New England region, especially on water quality problems. Three main areas regarding research and planning must be explored in addition to the work being done on the physical, chemical, and quality aspects of water.

The first area concerns economic and legal analyses relating to water resources. Most projections of water supply and demand that have been done have been based on population projections that have not proved accurate. These studies generally do not take into account the probability of higher water prices in the future, and the effect these prices will have on water use by industry, agriculture, residential consumers, and other sectors. In spite of the many difficulties associated with determining supply and demand parameters for water, both specific and aggregate coefficients must be obtained, and are lacking in the literature reviewed.

In addition to the need for thorough economic analyses for watersheds, the lack of uniformity in water laws in the region is apparent. Indeed, in many facets of ownership and use there is no clear-cut legal basis. Water law is often made on a case-by-case basis, leading to inconsistencies in application. In addition, most courts do not have the means at hand to determine efficiency and income distribution effects of a particular decision. A combined economic-legal analysis is an apparent must for future research in the region.

The second area of concern in watershed planning relates to coordination of research. Through the Water Resources Research Catalog published by the U. S. Department of the Interior, research projects are identified and duplication of effort on specific problems can be reduced. The coordination problems referred to in this context involve *how* and *where* the research and planning in water economics and law will take place. For specific economic analysis of a watershed, the best probable agency to perform the task would be the Water Resources Research Center of the university (or universities) that the watershed encompasses. The development of benchmarks for such analyses, however, must first be accomplished. Such a benchmark study is now being performed by the University of New Hampshire Water Resources Research Center, in determining water supply and demand functions in the Piscataqua River watershed.

In the field of water law, the best probable course to follow for research involves the question of facilities. Few New England land-grant universities have law schools; the University of Connecticut is one exception. There has been some work done at that University on water law. It may be logical and proper to designate the University of Connecticut's Water Resources Center as the agency best suited to investigate problems of water law for the New England region.

The third area of concern can be designated as integrated watershed planning and research needs, and revolves around the question of development of any watershed to a significant economic degree by consideration of each resource--water, non-fuel minerals, agriculture and forestry--as an independent entity to be independently developed or exploited. Water resources must be developed in relation to the speed and extent of the development of agriculture, forestry and minerals. If it is shown by research, for example, that extensive deposits of gravel and sand exist in a watershed, the importance of these deposits as aquifers should be determined before exploitation of the gravel is initiated. Removal of the deposit might seriously affect overdraft and safe yield rates, and a loss in water quality is possible due to reduced filtration. Similarly, the cutting practices and rates in forest exploitation can change evapotranspiration rates in a watershed. Drainage basin water supplies may possibly be reduced because of soil erosion and rapid discharge as a result of the removals, or the removal of trees can result in a net increase in the water supply in the area through reduced transpiration loss. Integrated analysis of the economic effects of physical changes should be of primary concern in the planning process.

B. Groundwater Resources

The literature on groundwater resources and water supplies indicates that much information exists with regard to inventories of water supplies. The 1963 report on municipal water facilities by the U. S. Public Health Service provides a thorough inventory of water supplies in each state in the region. Two possible areas can be suggested for future planning and research.

First, some coordination of quadrangle studies for the region as a whole would appear to be in order. These studies might be published in a volume or series of volumes so that relating the data in them to specific watersheds would be facilitated.

Second, the economic effects and feasibility aspects of changing technical capacities of municipal plants and other water withdrawal systems in the region should enter as an objective in future studies of ground-water resources. An integral objective of future quadrangle studies should be the collection of basic economic data for analyses of this type. Physical input/output data must be supplemented with actual or estimated cost data.

C. Flood Control

Much of the research work on certain aspects of the water resources of the region is not included in this report since other task forces have assignments relating to water power and transportation. However, since some of these studies do have implications in the context assumed by this task force, they are included.

Flood control projects have a number of ramifications for resource development in the region. Economic evaluation and planning for these projects must take into account the effects on the natural resources of a specific area including land use, agriculture, and forestry. The interrelationships make it imperative that consideration be given to all aspects of a given project in assessing its ultimate value. Although a number of studies have been devoted to an assessment of the damages and other costs of flooding, there seems to be a lack of material relating to an assessment of other effects that flood control projects may have on the other resources and the economy of the region after construction. This indicates that flood control projects should be considered as part of the larger problem of watershed development and planning.

VI. Non-Fuel Minerals

The literature on mineral resources of the New England region consists predominately of studies of the geological characteristics of the region. A relatively limited number of research reports relating to the development of the mineral resources of the region is available. The low-grade nature of most of the deposits in the region relative to other areas probably contributes to this lack. Should new technology be developed that would enable profitable exploitation of these deposits, studies of an economic nature would be warranted.

The most important mineral resources of the region exist in the sand and gravel deposits to be found in the region. However, almost no research has been concerned with these resources. There is a need for studies which would aid in the development and planning of the economic use of these resources. The relation to preservation of natural beauty is unquestionably a problem area. Also unexplored is the relation of sand and gravel deposit exploitation to the water resources of the region.

VII. Agriculture

A. The Land Base and Land Use Planning

Much research work has concentrated on the problems of land use and conservation. Apparently every area in New England has been classified as to soil type. Most counties have land use maps and every county has a Soil Conservation Commission concerned with the preservation and improvement of the land resource. A large number of rural communities have developed plans for land use including conservation practices, zoning plans, and the like.

Research on soil types and land use plans becomes extremely relevant when applied to other aspects of resource management. In agricultural production, efficient resource use implies that the land resource is managed and used according to its capabilities. In addition, it is implied that the land will be utilized with the long-run preservation of that resource in mind.

Management of the forest resource also takes into account land use and capability. Water resource planning is equally dependent on knowledge of the characteristics and capabilities of the different types of soils found in a given area. Urban planning also requires information concerning soil types and drainage characteristics when considering housing development plans, water supplies, and sewerage problems.

In reviewing the literature it appears that much work on this topic has been done. Agencies or communities concerned with development plans for an area or region would be well advised to avoid duplication of previous work by carefully reviewing research already completed concerning land resource inventories and plans.

B. Agricultural Adjustments

Most of the work done in this area has been descriptive of changes that have taken place in agriculture over a given historical period. More significant, perhaps, is the work that has been done toward providing information to farmers on the adjustments they should make in order to increase production and incomes. This latter research is typically directed toward a specific commodity, that is, dairy farming, poultry farming, fruit production, and so forth.

The work done in describing historical adjustments made in agriculture is not, however, without merit. These studies provide a great deal of information on trends. Even taking into account the many inherent problems associated with trend analysis, it still is one of the most popular and accepted methods of making projections.

C. The Competitive Position of New England Agriculture

Some research has been conducted on the topic of interregional competition relative to the agriculture of New England. The objective of this type of research effort is to attempt the determination of comparative advantage of producers in different regions. Usually the frame of reference is limited to one commodity or a closely related group of commodities. Most notable among the various studies have been those concerned with the competitive position of the New England poultry industry relative to other regions.

Research of this nature would seem to have high priority in any activity designed to promote agricultural development in the region. The principles of comparative advantage will, in large measure, predetermine the success or failure of any schemes for developing any of the commodity sectors in agriculture.

Not only is more research needed regarding the economics of interregional competition, but this research must, of necessity, be conducted on a continuing basis. As transportation costs in different regions change relative to one another; as wage rates change in a relative sense among regions; and as technology is adopted at different rates in different regions, the competitive factors change. Thus, a region that may enjoy an economic advantage during one period in time may be at a disadvantage at a later period if conditions change.

D. Agriculture and Economic Growth

At some point in discussing the problem of economic growth the role of the agricultural sector must be defined and evaluated. Several studies have been directed at evaluating the contribution made, in dollar terms, to the regional and state economy. Others have directed efforts toward evaluating the interactions between the agricultural sector and other sectors of the economy.

Some significant contributions have been made in evaluating the future needs of the region for agricultural products. These studies utilize population projections in developing aggregate consumption needs for agricultural and food products for the region in the future. Then attention is focused on the changes that will be required in the agricultural sector in order to satisfy this projected demand. This sort of information along with information on trends and competitive advantage among regions can provide planners with development potentials in the agricultural sector of the economy.

Although some very significant research has already been done in this area, more is needed and will continue to be needed in the future as population shifts occur and as competitive conditions change.

Agricultural projections for the New England region should take into account the competitive position of the region relative to other regions for each of the major agricultural commodities. To assess competitive advantage or disadvantage, studies of interregional competition should be made. The appropriate research technique for such studies is the spatial equilibrium analysis which has been used by some researchers in other areas. The spatial equilibrium analysis utilizes computer techniques in evaluating production and transportation costs for a product produced in given production areas and marketed in specific markets. The results of these studies indicate areas that enjoy competitive advantage in production and marketing costs relative to other areas. The analysis also reveals to producing areas those markets that will offer the best returns for their products. This type of analysis can offer to planners an indication of regional and sub-regional adjustments that may be made as a result of economic forces not immediately apparent.

VIII. Forestry

A. The Forest Base

Research work concerning the development of the forestry resource in the New England region has taken several forms. Many inventories of the forest resource by species and timber volume have been made. Such inventories are necessary on a periodic basis to assess changes that have taken place in the character of the forest resource and to assess the forest "base" for the region.

However, there does not seem to be a uniform method of evaluation of the forest resources of the various states of the region. Perhaps a regional census of the forest base is needed on a periodic basis with each state using the same classifications and methodology to arrive at uniform and comparable estimates of the extent and composition of the forest resources in the region.

Another problem which warrants more attention is the issue of forest land taxation, particularly with respect to small forest land holdings. The nature of the forest resource in terms of management practices, delayed returns and changing values indicates a need for study of tax policies that will promote wise development and exploitation of the forest resource. It should be obvious that the issue also relates to such factors as natural beauty, land use planning, and premature development as well as representing a source of tax revenues.

B. Forest Management

A great deal of the work conducted in the area of forest resource development is oriented to the management of the forest resource. In these studies management practices, such as cutting techniques, are related to such factors as product values, sustained yields and forest resource preservation.

Only a representative sample of the work on this topic is included in the annotated bibliography. It appears that this area of research is adequately covered by the efforts of the U.S. Forest Service, the State Departments of Forestry, and the work done by forestry departments in the various universities of the region.

C. Forest Resource Development

A few studies have been concerned with the development of a new industry in a state or sub-area within a state. Most of these studies have analyzed the availability of the timber raw materials in terms of quantity and quality and based most of their recommendations on that aspect. Few have conducted any detailed analysis of production costs for proposed firms nor have competitive costs among regions received much attention in a market analysis.

Significant exceptions to this general impression are those studies conducted in New Hampshire on the utilization of low grade hardwoods. One University of New Hampshire study is an economic analysis of potentials for the hardwood industry of New Hampshire. A detailed analysis and evaluation of available resources, including labor, power, transportation, and others are integral to the study. The study focuses specifically on prospects, potentials, and profitability for the production of certain wood products. A plan for action in implementing the conclusions of this study comprises a concluding section. The Arthur D. Little project concentrates on prospects for the pulp and paper industry and employment in New Hampshire. An economic analysis of the industry was developed with an assessment of the technologies available. The concluding section deals with opportunities and market potentials for individual firms.

Comprehensive planning for the development of the forest based industries of the New England region demands the type of information provided by the New Hampshire studies. It seems apparent that more work will be required in this area.

SECTION 2 BIBLIOGRAPHY

I. Preface

This bibliography is not intended to represent a complete inventory of all publications relating to agricultural, forest, water and mineral resource development in the New England region. Included are those publications that were considered significant contributions to knowledge and the planning process.

The classification framework employed in this bibliography is arbitrary to some degree, and individual citations were classified under what seemed to be the most logical heading. Cross classification was not done, generally, even though many of the studies included elements applicable to other sections.

Unless otherwise noted, publications included are available for review at most university or state libraries and/or state planning offices in the New England region. Research projects currently in progress are designated by the abbreviation CR.

As in most efforts of this type, the time element became a limiting factor on the project.

II. The Role of Agriculture, Forestry, Water and Minerals in Economic Growth

A. National Economic Development

1. Center for Agricultural and Economic Development. Fundamentals for Area Progress, Report No. 19, Iowa State University, Ames, Iowa, 1963.

   This report deals with the broad problems of community development and the economic base; the concept of community development; processes of social action in community and area development; structuring new emphasis on community development; and delineating the area of community development.

2. Clawson, Marion and R. Burnell Held. The Demand for Rural Resources in the Context of Long-Range National Needs, Resources for the Future Reprint No. 44, December, 1963, Washington, D. C.

   This publication deals with manpower projections in agriculture in the year 2000, and the changes that will be taking place in small towns and rural communities; it also gives the estimates of the capital structure of agriculture in the year 2000 and deals with suggestions for new orientations in agricultural economics.

3. Eicher, Carl and Lawrence Witt, editors. Agriculture in Economic Development, McGraw-Hill Book Company, 1964.

   This book is a collection of papers written on the topic of agriculture and economic growth. The first section of the book analyzes economic development and agriculture in a historical perspective. A second section deals with measurement problems in the agricultural sector. A third section deals with theoretical aspects of agriculture in economic development. A final section deals with change in agriculture.

4. Hamburg, Morris and John H. Norton. An Evaluation of Selected Data Requirements and Availability for Urban Economic Planning and Development in Pennsylvania, Wharton School of Finance and Commerce, University of Pennsylvania, December, 1963, Release No. S-11B.

   This study represents a comprehensive analysis of methodology for economic planning and development efforts. A section dealing with data requirements is quite relevant to any area studying economic development. Another section dealing with the use of data and statistics would be of great value to planners.

5. Heady, Earl O. and Luther G. Tweeton. Resource Demand and Structure of the Agricultural Industry, Iowa State University Press, Ames, Iowa, 1963.

   This book draws upon material from a number of research studies to analyze resource use and productivity in the agricultural sector of the United States economy. Resource structure and organization in agriculture resulting from the various analyses are projected to 1980.

6. Iowa State University Center for Agricultural and Economic Development. Economic Development of Agriculture, Iowa State University Press, Ames, Iowa, 1965.

   This book consists of a collection of papers dealing with economic development in agriculture, examples are given from cases in less developed countries, and some generalizations are drawn from experiences elsewhere as well as from experience in United States agricultural history concerning needs for change. Some of the concluding papers deal with other needs for agricultural development such as research, more precise definition of the role of trade, and technological evolution.

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   This book contains an overall survey of the theory and policy of economic development. A chapter deals with industrialization and agriculture.

The functions of agriculture and development, the aspects of agricultural productivity, land reform, technology, and growth are included.

8. Snodgrass, Milton M. and Luther T. Wallace. Agriculture, Economics, and Growth, Appleton-Century-Crofts, New York, 1964.

    This book relates agriculture and natural resources to the growth and development of the national economy. As a basic textbook the book covers a considerable amount of basic economics, however, a final section deals with problems concerning agricultural development and policy formulation.

9. United States Department of Agriculture. Agriculture and Economic Growth, Agricultural Economics Report No. 23, Economic Research Service, 1963.

    This publication begins with a description of some of the theories of economic growth and emphasizes the role of agriculture in economic growth. Agriculture's role in economic growth is then examined from the point of view of past and future contributions. Examples include not only the United States, but foreign countries as well.

10. United States Department of Agriculture. Agricultural Land Resources in the United States with Special Reference to Present and Potential Cropland and Pasture, Agricultural Information Bulletin No. 140, June, 1955.

    This report describes land uses for agricultural production in the United States and in regions and states within the United States. Projections are made for cropland use to 1975. An analysis is made of factors involved in shifts of land use and agricultural alternatives.

11. United States Department of Agriculture. Development of Agriculture's Human Resources - A Report on Problems of Low-Income Farmers, Washington, D. C., April, 1955.

    This report deals with characteristics of low-income farm families, nonfarm employment, mobility of farm people, vocational training, and industrialization. The publication also presents some general recommendations for action.

12. United States Department of Agriculture. Foundations of Agricultural Planning, Bureau of Agricultural Economics, Washington, D. C. 1941.

    This report was an effort to consolidate much of the material written concerning the agricultural planning process, its organization and methods for conducting the work. It suggests several new departures in the planning process which were believed to be desirable in the light of past experience (unpublished preliminary working draft reviewed).

13. United States Department of Commerce. Economic Development Atlas--Recent Changes in Regions and States, Office of Domestic Commerce, Area Development Division, Boston Regional Office, June, 1950.

This atlas sets forth in graphic and tabular form some of the more significant economic changes that took place in the geography of the national economy in years up to 1950.

B. Regional and State Economic Development

14. Armour Research Foundation. Planning Study for the Economic Growth of the State of Maine, Small Business Management Research Reports, Prepared for the State of Maine, Department of Economic Development (under an SBA grant), Project Director Sulo J. Tani, February, 1961.

This report summarizes results of a state-wide survey of industry and growth potentials. It gives an analysis of potential growth activities for the state and a plan of action for the state, its communities and the Department of Economic Development. Included are evaluations of forestry, agriculture and fisheries industries.

15. Arthur D. Little, Incorporated. Projective Economic Studies of New England, United States Army Engineer Division, New England Corps of Engineers, 1964-65. LC.

This comprehensive study of the New England region was prepared as part of a total planning program for the development and conservation of water resources in the region.

Projections included: population, labor force, employment, output and income in the area. The methodology is described which essentially consists of trend analysis using regression analysis as the statistical tool. The report then focuses on equilibrium labor force and population projections, base industry and non-base industries, and manufacturing and non-manufacturing employment projections.

Included as appendices are projections of employment in fisheries and mining, agriculture, and forestry.

16. Blair Associates. Resources and Problems of the Southeastern Massachusetts Planning Region, Prepared for the Southeastern Massachusetts Regional Planning District, March, 1958. LC.

This study gives an overview of the major resources of the region and indicates the nature of problems which must be solved to achieve regional development. The study considers the following resource areas: natural, human, urban, transportation, and economic. A final section contains an outline of proposed future research and planning.

17. Booz, Allen and Hamilton. The Economic Development and Competitive Position of the State of Connecticut, 1959 to 1975, Abridged Edition, Report to the Connecticut Development Commission, Connecticut Development Commission, Hartford, Connecticut, 1960.

The report contains projections for Connecticut for the period 1960 to 1975 for population, labor force, per capita personal income. The report contains an inventory of Connecticut's competitive disadvantages relative to other areas in the country and also Connecticut's competitive advantages relative to other areas. Recommendations were made relative to tax policies, unemployment compensation, labor, mobility, transportation, nuclear energy, and economic development plans by groups.

18. Bowdoin College Northeastern Research Foundation. Planning for Development in the State of Maine, Prepared for the Maine Department of Economic Development, January, 1965.

This study presents a plan for economic development in the State of Maine. Human resources, labor force, employment, natural resources, manufacturing, recreation, mining, land use, and other aspects are examined in the study. Recommendations are made for a comprehensive analysis of the economy as a basis for a comprehensive economic policy in the state.

19. Bowring, James R. A Study to Identify Low-Income Areas in New Hampshire, Resource Economics Mimeo No. 6, Department of Resource Economics, University of New Hampshire, Durham, New Hampshire, August, 1965.

Background data for use and further studies dealing with income, housing, employment and welfare in New Hampshire.

20. Bowring, James R. and K. A. Taylor. The Agricultural Characteristics of the Metropolitan and Non-Metropolitan Counties in New England Agriculture Between 1949 and 1959, March, 1962, Durham, New Hampshire. 22 pages.

Population changes, farm characteristics, farm size, farm cost, land values, ownership and products sold.

21. Connecticut Development Commission. Resource Industries: An Analysis of Connecticut's Agricultural, Forestry, Mining, and Fisheries, Technical Report 141, June, 1963. NA - Reference at Connecticut State Library.

This study discusses the historical development, current situation, commodity analysis and future prospects of each of Connecticut's major resource-based industries. The study forecasts employment in each of the major sectors of this group of industries to the year 2000, and contains a detailed statistical appendix.

22. Connecticut Development Commission. *Progress Toward Regional Planning in Connecticut*, Hartford, Connecticut, March, 1959.

This booklet is a report on the status of state-wide studies conducted to define planning regions for the State of Connecticut. Included is a discussion of the reasons for growing interest in regional planning, the means by which regional planning will operate, and the accomplishments which may be anticipated. A significant feature of the publication is an outline for typical regional planning program. Of interest for this bibliography are the comments concerning natural features of the terrain including landscape topography slope, soils and drainage, water resources and agriculture. Also included are aspects having to do with land use and water use for the communities.

23. Connecticut Development Commission. *Connecticut--A Dynamic Economy, An Economic Survey of Post-War Connecticut, 1947 to 1955*, Hartford, Connecticut, 1956.

The study surveys the economic situation existing in Connecticut immediately following World War II. Population growth and industrial development form the bulk of the work done in this study.

24. Directive Committee on Regional Planning. *The Case for Regional Planning with Special Reference to New England*, Yale University, Yale University Press, 1947.

This book presents a framework for regional analysis and regional planning. It includes a construction of the planning process, definitions of regions, the definition of the New England region. A section deals with problems of New England and a concluding section includes a list of proposed actions to be taken with regard to New England planning. The latter section deals primarily with a recommendation for a New England regional planning administration.

25. Frederick P. Clark and Associates, Planning Consultants. *The Naugatuck Valley Region--A Regional Planning Study of Conditions and Prospects*, Prepared for the Connecticut Development Commission, Hartford, Connecticut, 1957.

The study includes an inventory of the existing situation including land use, agriculture, forestry and water resources. Some projections are made for population and employment in the region to 1975. A land use study was made and recommendations proposed for land use. A final section deals with planning recommendations and means for implementing such recommendations.

26. Friedman, John and William Alonso, Editors. *Regional Development and Planning*, the MIT Press, Institute of Technology, Cambridge, Massachusetts, 1964.

This book is a compendium of studies on economic development and regional planning. Included are such topics as space and planning, location and organization, resources and migration, the role of the city, problems of the rural periphery, organization for regional planning, objectives and evaluation of planning and development programs. The section on the rural periphery includes topics such as industrialization, factor markets, and agricultural development. Also included is a paper on the interpretation of migration from agriculture.

27. Kravitz, Alan S. A Study of Regional Planning for New Hampshire, Hanover, New Hampshire, 1963. 18 pgs.

28. Maine Development Commission. Post-War Planning for the State of Maine, Augusta, Maine, November, 1944.

This book contains general employment data in Maine in 1944 and lists state projects for agriculture, forest service, geological survey projects, and other state department summaries.

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An economic base study for the Naugatuck and Farmington River Valleys and the state as a whole. Estimates are made of future potential for population, employment, and economic activity in these areas.

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This is a report of 10 years' experience in regional planning in New England. Progress relative to forestry, water use and land use in the New England area are reported.

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This report contains an analysis of existing conditions in the New England region relative to land use, recreation, water use, industry, housing, etc. Recommendations for future action are made for each of the major areas of concern.

33. New England Regional Planning Commission. Report of the New England Regional Planning Commission for the New England Basins, United States Government Printing Office, 1937, December.

This report designates the physical limits, physical description, severe and immediate problems, recommended plans and investigations in river basins current in 1937. The report encompasses central New England basins, the latter including the Merrimack, eastern Massachusetts, the Thames-Blackstone-Taunton, and the Connecticut-Housitanic. Estimated costs for various projects such as hydrologic, data and investigation, municipal water supply, and pollution abatement; flood control, soil conservation, recreational waters; water supply sources, pollution abatement and drainage.

34. Northeast Regional Resource Economics Committee. A Review of Resource Economic Problems in the Northeast, Report No. 1, Published by Pennsylvania State University, April, 1965.

This report consists of a series of papers presented at the Regional Resource Economics Committee Meeting in New York City, November 16-17, 1964. Of particular interest is a paper by Hays B. Gamble entitled, "Application of an Input-Output Model to 'Microregional' Analysis." This paper describes the methodology used in a Pennsylvania study.

35. Russell, Sargeant. The Potential Effects of the St. Lawrence Seaway on the New England Economy, Ph.D. Thesis, University of Massachusetts, Department of Economics, 1956.

A study of the possible effects on the New England economy due to completion of the St. Lawrence Seaway. Transportation and power supplies are two areas where gains might be realized.

36. Sirkin, Gerald. The Connecticut Economy, Prepared for the Connecticut Development Commission, Hartford, Connecticut, 1957.

This study is a historical description of the economic growth of the State of Connecticut during the period 1949 through 1956. Included are employment trends, population trends, and manufacturing trends.

37. Tanner, Earl C., et. al. An Introduction to the Economy of Rhode Island, Rhode Island Development Council, 1953.

This report concentrates on industrial factors in the state's economy and labor and population. One section of the report deals with the natural resources of the state. Included is an inventory and description of mineral resources, water supplies, agriculture, forestry, fisheries, and recreation. A concluding chapter deals with economic planning and development as it has occurred in the State of Rhode Island.

38. United States Army Corps of Engineers. Land and Water Resources of the New England-New York Region, A Report on the Land and Water Resources of the New England-New York Region with Accompanying Papers and Illustrations Requested in the Flood Control Act of 1950, Document No. 14, 85th Congress, 1st Session, United States Government Printing Office, Washington, D. C., 1957.

This report presents what is probably the most comprehensive inventory of the resources of the Northeastern region and plans for development. It presents a general inventory of possibilities in future developments in the region and provides an overall view of the developed and undeveloped resources of the region as a general framework within which the states, the federal agencies and the Congress may consider future recommendations for specific program developments. The report provides the information needed to achieve comprehensive river basin planning. Included in the report is a description of the natural resources of the region and sections concerning the development and utilization of resources in the region. Topics covered are those dealing with water supplies, water use, and flood control, fisheries and wildlife, recreation land management, minerals, and specific limitations. Detailed plans are presented for development of river basins in the region. Part II of the study is titled the Technical Report which contains detailed studies of the river basins and special subjects. Of primary interest in this part of the report are sections on the economic development of the region. Studies and recommendations deal with specific communities and areas within the region.

39. United States Army Corps of Engineers. The Resources of the New England-New York Region, New England-New York Interagency Committee, Coordinating Office, 1955. LC.

A survey of natural resources including agriculture, drainage, fish and wildlife, flood control, minerals, navigation and beach erosion, pollution control, insect control, water supplies, power, recreation and economics.

40. United States Department of Commerce. Economic Survey of New England, Boston Regional Office, 1948.

This is a general report which covers in brief form all aspects of the New England economy including statistics up to 1948.

41. University of Maine. Understanding Maine's Economic and Social Environment - Proceedings of the Annual Winter Cooperative Extension Service Conference, January 4 through 6, 1965, Cooperative Extension Service, Orono, Maine.

This publication is a comprehensive set of papers concerning economic development in Maine and also contains some details concerning New Hampshire and New England. Topics covered are economic development, the social structure, agriculture, forestry, fisheries, recreation, manufacturing and service, education, taxation, and employment.

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This bulletin contains tabular statistics concerning population, economic trends, data on taxes in government, transportation and communication, and industry and finance.

43. University of Vermont. Focus on Your State - Developing Our Resources, Cooperative Extension Service, Burlington, Vermont, December, 1965.

This publication is a study guide for Vermonters interested in resource development in their state. A description of changes which have taken place in the state since settlement and the problems which have developed in the state in recent years are enumerated. Organizations and plans developed to control land use in Vermont are enumerated.

44. Vermont Resources Research Center. Physical, Economic, Administrative and Planning Regions in Vermont, Report IV, Agricultural Experiment Station, University of Vermont, Burlington, Vermont, 1964.

This report describes the physical and population characteristics of Vermont. Economic and administrative regions of the state are defined, and requirements of the various regions for planning purposes are enumerated.

45. State of Vermont. State Planning in Vermont, Central Planning Office, January, 1964.

This is a report on the goals and objectives of the Vermont comprehensive state planning program. The major aspects of the study already completed are reported as well as segments of the program yet to be completed. Included is a section on the economic base of the state and land use analysis and planning.

46. Weeks, Silas B. Important Considerations in the Analysis of Resource Development Opportunities, Agricultural Economics Mimeo 156, May, 1962, Cooperative Extension Service, University of New Hampshire, Durham, New Hampshire.

This paper reviews the theory and methods of regional economic resource development and the institutional framework of regional economic and resources development.

47. Whyte, William H. Connecticut's Natural Resources, A Proposal for Action, June, 1962, Connecticut Department of Agriculture and Natural Resources, Hartford, Connecticut.

The study inventories the problems regarding natural resources in the State of Connecticut. A plan for action in preserving and developing the resources of the state is presented. Notable among the proposals is that one aspect deals with town planning programs and the other deals with a state program. Included in the study is land use in the broadest sense. Also included are policies relating to water use and open land preservation.

C. Local and Sub-Regional Economic Development

48. Arthur D. Little, Incorporated. Projective Economic Study of Sub-Areas in the New England States, Cambridge, Massachusetts. Appendix included. Connecticut River Basin Comprehensive Survey: Draft Report. Prepared for the Corps of Engineers, United States Army Engineer Division, New England, Waltham, Massachusetts, Cambridge, Massachusetts, May, 1965. 65 pgs. LC.

Economic profiles: employment and population, historical and projected 1940-2020: projections of production and employment in the lumber industry; projections of agricultural employment; comparisons between sub-areas and state economic structure and employment growth.

49. Backmura, Frank T. and John H. Southern. Economic Bases and Potentials of Rural Communities, United States Department of Agriculture, Economic Research Service, RDED, AED Branch, Presented at Stillwater, Oklahoma, September 22-25, 1963.

50. Belknap County, New Hampshire. Unified County Program - Belknap County, New Hampshire, 1940-1941, NHLU-21.

The objectives of this program were to encourage the conservation and developments of resources in the areas affording good opportunities for commercial agriculture, encouraging and facilitating better adjustment of people to resources in the non-agricultural area, facilitating the construction and maintenance of serviceable all-weather roads to year-round homes, and improving the level of physical and mental health of the people in the area. The bulk of the report deals with agricultural land use and conservation practices. Another section of the report deals with need for improved highway systems in the area.

51. Carroll County Rural Areas Development Committee. Overall Economic Development Program, February, 1963.

This report includes a general inventory of human, natural, and physical resources of the county. A review of factors contributing to economic stagnation and a review of past efforts to solve problems in the county are enumerated. A rather large quantity of information concerning the characteristics of the area in terms of industries, trade statistics, surveys, etc., are in the report. Perhaps the most important section deals with development proposals, recommendations, and goals for economic development of the county.

52. Coos County Rural Areas Development Committee. Continual Overall Economic Development Program for Coos County, New Hampshire, July, 1964.

The program includes a description of the development area and its economy. The various resources are inventoried and evaluated in terms of their basis for the economic growth of the area. Problems and needed adjustments in the area are analyzed and enumerated and area goals and programs are set forth.

53. Coos County, New Hampshire. Unified County Program - Coos County, New Hampshire, 1940-1941, NHLU-22.

The objectives of the unified program included encouraging the conservation and development of resources in the area, encouraging and facilitating better adjustment of people to resources in the non-agricultural area, facilitating the construction and maintenance of serviceable all-weather roads to permanent year-round locations, and improving the level of physical and mental health of the residents of the area. The major emphasis of the report seems to be developing a land-use plan for the county identifying different types of lands and alternative uses for this land. Another section deals with the road system and needed improvements of same in the county.

54. Gilmore, Donald R. Developing the "Little" Economies, Supplementary Paper No. 10, Committee for Economic Development, April, 1960.

This publication deals with 1) publically financed programs for economic development on the local and regional level and 2) with privately financed programs of economic development.

55. Glasgow, Robert B. and E. L. Baum. Considerations for Planning Economic Development of Rural Areas, United States Department of Agriculture, Economic Research Service, RDED, AED Branch, Delivered to the American Economic Farm Association Annual Meeting, Minneapolis, Minnesota, August 28, 1963.

56. Grafton County Rural Areas Development Committee. Preliminary Overall Economic Development Program for Grafton County, New Hampshire, Prepared by the Committee, estimated date, 1962. LC.

This report deals with the organization of the redevelopment area; the redevelopment area and its economy, including historical data, soils, climate, and population data, labor force, income, employment and manufacturing data; resale, wholesale, and services trade data; unemployment and underemployment; and past efforts to solve problems.

This report gives the potential basis for growth of the county including estimates on potentials of mining, agriculture, forestry, recreation, industrial and commercial sites, and other area facilities. The report deals with problems of the county and needed adjustments and sets forth area goals and programs.

57. Holway, Frances I. A Depressed Area and its Redevelopment: Case Study of Biddeford and Saco, Maine, M. A. Thesis, University of New Hampshire, Durham, New Hampshire, 1961. 145 pgs. LC.

58. Sewall, James W. York County, Maine: Comprehensive Development Plan, 1963-1964; Volume IV is the relevant volume. LC.

Volume IV deals with natural resources including geology ground water, water, agriculture, forestry, and fisheries.

59. James W. Sewall Co. The Natural Resources of Knox County, Maine - Summary Report, Planning and Research Department, Knox County Regional Planning Commission, 1963. LC.

This report considers major natural resources available to the region for future growth and contains some recommendations for the development of these resources. There are several detailed maps included.

60. Maine Department of Economic Development. Development Resources of the Penobscot Region, October, 1959.

This study includes data on geography, industrial financing, natural resources, manufacturing, labor and wages, population, transportation, commerce and trade, utilities, education, government, taxation, recreation, and development potentials. Emphasis is placed on the resources of the area in terms of development potential.

61. Metcalf and Eddy, Engineers and Planners. Comprehensive Plan, Grafton County, New Hampshire, Preliminary Report No. 1, Physical Features and Natural Resources, March, 1964, Prepared for the Grafton County Rural Area Development Committee and the New Hampshire Department of Resources and Economic Development. LC.

The report includes a comprehensive study of each of the physical features and natural resources of the county, including climate, geology and minerals, topography, soils, agriculture and forestry, drainage, and water resources. This report is one of five basic studies of the county made in preparation for a comprehensive land use plan.

62. National Association of Counties Research Foundation. Comprehensive County Planning--Federal Assistance Programs, Technical Advisory Report No. 2, Washington, D. C., 1964.

This report gives the general aspects of planning, including comprehensive planning programs such as 701 and OEDP, the collection of basic data for planning, administrative assistance for planning, land use planning assistance from public and institutional facilities, etc. Especially relevant are the sections on flood prevention and watershed protection, beach and shore control, irrigation and drainage, research mapping and salient water research. This report also has a selected and annotated bibliography of federal, state and county publications related to comprehensive planning and federal grant-in-aid programs.

63. New Hampshire Department of Resources and Economic Development. Economic Base Study, Grafton County, New Hampshire, December, 1963. LC.

The study contains a description of the current situation in Grafton County, including growth trends, manufacturing, recreation, agriculture and forestry, education, government expenditures, employment, taxes, and wage rates. The report appraises economic obstacles and opportunities facing the county and deals with general problems and some suggested remedies which would enhance the economic growth of the area.

64. New Hampshire Planning and Zoning Association. 1958 Community Planning Seminar Sponsored by New Hampshire State Planning and Development Commission, University of New Hampshire.

This publication is a compilation of talks presented at the seminar. Topics included planning the community, planning the town, zoning, traffic, recreation, improving the economy, and beautification.

65. New Hampshire State Planning and Development Commission. A Plan for Development of the Seacoast Region of New Hampshire, January, 1942.

The study includes an analysis of the resources of the Seacoast region including labor, land and water. A number of proposals are advanced for industrial development, recreational development, transportation, and housing.

66. Northeastern Research Foundation. The Economy of the Androscoggin Region, prepared for the Androscoggin Valley Regional Planning Commission and the Maine Department of Economic Development, Brunswick, Maine, June, 1964.

This report is an economic base study of the area around Lewiston and

Auburn, Maine. The study includes data concerning population and income, labor force and employment, manufacturing, financial institutions, agriculture and resources, recreation, education and local government. With respect to the section on agricultural and natural resources, data on this sector is presented and problems identified. Recommendations relate to individual adjustments which must be made.

67. Resources Research Center, W. F. Henry in charge. The Seacoast Regional Research Project, University of New Hampshire.

This study is being undertaken to inventory the natural and fixed resources in the seacoast region of New Hampshire, including forest, agricultural, water, mineral and ore deposits. The objective in making this study is to develop a list of available resources in the area to be used in planning potential economic growth, and adjustments for both private and public sectors of the economy; to assess the employment of resources in terms of employment, unemployment, and underemployment.

68. Soil Conservation Service. Making RAD Work in New England, Regional RAD Conference, April 1964, Boston, Massachusetts.

The papers deal with the primary topic of the conference, that of implementing and making effective RAD programs in New England.

69. Storer, James A. Maine Economic Development and the Community Survey, Bowdoin College Bulletin No. 320, Bowdoin College, Bureau of Municipal Research, March, 1956.

This study considers the overall economic development in Maine, placing special emphasis on its manufacturing activity as well as an evaluation of its resources. The purpose and content of the community survey is outlined and key considerations to be used in attracting new firms and industries to the community are discussed.

70. Tiebout, Charles M. The Community Economic Base Study, December, 1962, Supplementary Paper No. 16, Committee for Economic Development.

This publication provides a complete framework for conducting economic base studies. It includes the basis for such a study, the use of a base study, and the methodology for conducting an economic base study. Part II of the publication deals with the economic base analysis. Included are methods for analyzing the structure of the local economy and measurement of the economic aspects of the local economy. A good deal of attention is paid to structural interrelationships in the local economy including consumption sectors, production sectors, housing, investment government, etc. A final chapter deals with forecasting community economic levels.

71. University of New Hampshire. *Contoocook River Valley - Preliminary Study*, Cooperative Extension Service, Durham, New Hampshire.

This study is essentially an inventory of the economic, institutional and social resources of the area.

72. University of New Hampshire. *Rural Areas Development in New Hampshire Counties and County RAD Committee Membership 1965 - Second Annual State RAD Meeting*, Concord, New Hampshire, April 20, 1965, prepared by Department of Resource Economics, Durham, New Hampshire.

A report of activities carried on by RAD in the State of New Hampshire.

73. University of Vermont. *Overall Economic Development Plan for the Northeast Kingdom, Vermont*, assembled and printed December, 1963.

This report comprises a comprehensive study of the resources of the area including basic data concerning the economy. Each sector of the economy is analyzed in terms of an inventory of existing situation of resources and an appraisal of potential development and goals for the sector.

74. White River Soil and Water Conservation District and White River Valley Development Corporation. *White River Resource Conservation and Development Project - Vermont*, July, 1965.

This study presents a development plan for the White River Valley region of Vermont. A description of the area in terms of location, physical characteristics and economy is included. Problems and opportunities are enumerated for each of the resource sectors -- agriculture, forestry, recreation and industry. A series of projects are recommended and described which are designed to accelerate and enhance development of the area. A time schedule for implementation of projects is specified.

75. York County Area Redevelopment Committee. *Economic Structure of York County - Part of a Comprehensive Development Plan, York County, Maine*, 1963, LC.

This report contains an analysis of the existing economic structure of the county, a description of changes which have occurred in recent years, some inventory of resources existing in the area, and prospects for the future. Agriculture and forestry are included in prospects for future economic growth.

III. Water Resources

A. Watershed Development, Law, and Planning

76. Bartlett, R. J. Soil-Water-Plant Relation to Artificial Drainage, University of Vermont, Burlington, Vermont.

The objective of this project is to determine the effects of artificial drainage on crop adaptation, crop growth and yields, available moisture in the soil, and soil physical and chemical properties.

77. Braun, Morton B. Water Resources of the Connecticut River Basin: Problems and Proposals, Massachusetts Institute of Technology, Department of City and Regional Planning, September 1948 (M. A. Thesis, Massachusetts Institute of Technology.

This study discusses the administrative and planning problems in pollution, navigation, flood control, and hydroelectric power development of the Connecticut River Basin.

78. Bormann, F. H. Hydrologic-Mineral Cycle Interaction in a Small Watershed, Dartmouth College, Hanover, New Hampshire, CR.

This is an investigation into the absolute rates of mineral generation, withdrawal and circulation within a small eco-system. The experimental area is composed of several small watersheds in the Hubbard Brook Experimental Forest in West Thornton, New Hampshire.

79. Bureau of Government Research. Massachusetts Conservation Law: A Selected Compendium, University of Massachusetts, Amherst, Massachusetts, 1961, 119 pages. Copy not available for review.

80. Connecticut Agricultural Extension Service. Wise Use of Land and Water in Connecticut, Connecticut Agricultural Extension Service in cooperation with the Soil Conservation Service, U. S. Department of Agriculture, and Connecticut Department of Agricultural and Natural Resources, Storrs, Connecticut, February 1966, 16 pages.

81. Connecticut Department of Agriculture and Natural Resources. Connecticut Comprehensive State-Wide Resource Plan, 1965-1970, Hartford, Connecticut, 1966. Copy not available for review.

82. Connecticut River Watershed Council. How to Get Clean Water in the Connecticut Valley, A Reference Guide, Greenfield, Massachusetts, 1963. Copy not available for review.

83. Collins, R. P. A Study of Micro-Organisms Inducing Tastes and Odors in Water, University of Connecticut, Storrs, Connecticut, CR.

This is a study of the organic constituents produced by microorganisms causing tastes and odors in water.

84. Committee of New England of the National Planning Association. Water, Fuel and Energy in New England, The New England Council, Boston, Massachusetts, 1954.

This report deals with non-power water uses and problems in the New England region including rates of water use in New England at that time, pollution, and flood control problems. The report describes the New England fuel and electric power situation. The report describes future needs in the area of water, fuel and energy in New England; and it concludes that the high natural quality of many New England streams and rivers has been seriously impaired by years of abuse from discharge of municipal and industrial wastes. The coastal regions of rivers of southern New England were said to be particularly affected although rivers in northern New England were described as also having experienced considerable pollution.

85. Cooper, G. R. Relation of Climatology to Crop Production in Maine, University of Maine, Orono, Maine, CR.

This study has as one of its objectives the use of past water data in estimating rainfall probabilities, drought and other important weather events.

86. Donovan, William J. Discussion of Strategic Economic Considerations in Small Watershed Development, 1964 Proceedings, New England Agricultural Economics Council, University of Massachusetts, Amherst, Mass.

87. Duke, Richard D. An Annotated Bibliography on Water Problems, East Lansing, Michigan, 1962. Copy not available for review.

88. Eisenmenger, Robert W. New England's Water Supply in 1970, Resources Economist, Research and Statistics Department, Federal Reserve Bank of Boston, 1970, Projection No. 18, December 1959.

This publication presents projections regarding increase in water usage in the New England region. It states that with a population increase of 10% in the 1960-70 decade, water usage from public water supply systems will expand 30%. The study bases these observations mainly on the assumptions of increasing income and increased leisure time on a per capita basis.

The study mentions that the 1955 NENYIAC Report, the 1957 Report of

Metcalf and Eddy, and the 1957 Connecticut Water Resources Coordinating Board Report project an increase in water use of only 15% by 1970. Eisenmenger states that the reports apparently assume that the present rate of increase will not be sustained in the future. Future water supplies are not specifically estimated, but the report states that no city or town in New England need face a really serious water supply problem during the decade under projection. The report states that in the long run all the metropolitan water supplies in Southern New England may have to be interconnected to supply water to drought areas with other sections have sufficient rainfall, and that such interconnected systems will be the backbone of water supply in New England by the year 2000. The report suggests possible penalty fees for heavy water uses during the summer months of July, August and September in order to finance expansion to meet peak water needs. One possible solution with regard to recreation water problems is mentioned: public ownership. The report states that virtually all of the streams in New England, which are tributaries of interstate rivers, will be classified for their highest and best use by 1970, with regard to pollution problems.

89. Ellis, Harold H. Some Current and Proposed Water Rights Legislation in the Eastern States, Reprinted from the Iowa Law Review, Volume 41, No. 2, (Winter, 1956) pages 237-263.

The author discusses permit systems in the states of Wisconsin, Minnesota, North Carolina, South Carolina, and proposed bills for South Carolina, Arkansas, North Carolina, Michigan, Wisconsin; and makes comparisons between the appropriative and riparian systems of water law, raises some constitutional questions, and suggests some minimum types of legislation that may be needed with some general considerations for northeastern states.

90. Fabuss, B. M. Properties of Saline Water Systems, Monsanto Research Corporation, Everett, Massachusetts, CR.

One objective of this study is to provide information on the thermodynamic properties of saline water systems so that saline water conversion can be carried out more effectively at higher temperatures.

91. Ferren, Donald G. Recreational Plans in the Baker River Watershed Under Public Law No. 566, Stowe, Vermont, June 1963, 6 pages.

Background of watershed and multiple purpose development including recreation.

92. Fisher, C. O. Connecticut Law of Water Rights, In Water Resources of Connecticut, Appendix A, report to the general assembly by the Water Resources Commission, Hartford, Connecticut, December 1956 (44 pages).

This publication deals with natural water courses, ground water, surface water, and the sections of Connecticut general statutes relating to water.

93. Fogg, Forest. Salt Marshes of New Hampshire, New Hampshire Fish and Game Department, October, 1964.

This report is an evaluation of past, present and future developments in salt marshes in New Hampshire. Several organizations interested in conservation had united in an effort to secure public ownership and preservation of the coastal marshes of New Hampshire, for which were there plans contemplated for filling, dredging, and development of commercial interest. This report attempted to answer the question of what will be accomplished if the objective of public ownership is fulfilled. There is an evaluation of present and past utilization of the area; its various values --including an estimate of current income produced; and the effect that commercial development should have on the area. Wildlife species that are present in the area are listed and recommendations for use of 10 individual areas are included.

94. Forste, R. H. An Economic Analysis of Water Supply and Demand in the Piscataqua River Watershed, University of New Hampshire, Durham, New Hampshire, CR.

The objectives of this study are to construct supply and demand parameters for water in the Piscataqua River Watershed by specific and aggregative use and to provide various management agencies with sets of alternative policies for water pricing and distribution.

95. Fox, Irving K. Water Supply, Demand, and the Law, Resources for the Future Reprint No. 15, Washington, D. C., 1960. Copy not available for review.

96. Fox, Irving K. Reason in Water Management, Resources for the Future Reprint No. 33, Washington, D. C., February 1962.

This describes the nature of the task of water resources management in the United States today.

97. Fox, Irving K. New Horizons in Water Resources Administration, Resources for the Future Reprint No. 51, Washington, D. C., April 1965.

This publication reviews welfare economic theory, water resource investment problems and the policy institutional framework in which decisions are made. Fox concludes that technical economic progress has surpassed that on the administrative side, and suggests new organizational arrangements for deciding and implementing governmental policy for water resources.

98. Fox, Irving K. and Henry P. Caulfield, Jr. Getting the Most Out of Water Resources, Resources for the Future Reprint No. 28, Washington, D. C., May 1961.

This paper suggests that the United States needs a new and quite comprehensive approach in policymaking to obtain best results in managing water resources. They describe 3 key concepts which have influenced American thought on water development and go on to state that new policies are needed. The authors then make specific suggestions toward getting the most out of water resources through water management in the 1960's and beyond.

99. Fox, Irving K. and Orris C. Herfindahl. Attainment of Efficiency in Satisfying Demands for Water Resources, Resources for the Future Reprint No. 46, Washington, D. C., May 1964.

This paper deals with the problem of how an efficient allocation of water resource investment can be approached closely given the objective of increasing national income. The paper examines certain key federal policies which bear on efficiency including such things as benefit cost analyses; it analyzes certain features of 178 reports on projects authorized in 1962 by the Congress for construction by the Corps of Engineers, and it compares in a limited way the Corps' projects authorized in 1962 with the Corps' projects authorized in 1950.

100. Glymph, L. M. Water Yield and Relation to Climatic and Watershed Characteristics of Land Resource Area in the Northeast, Plant Industry Station, Beltsville, Maryland, CR.

The objective of this study is to identify the climatic and watershed factors of land resource areas of the northeast that influence water yields from agricultural watersheds; to develop procedures for estimating surface and sub-surface contributions to stream flow from parameters of climate and watershed characteristics, and to develop procedures and possible formulas to reliably estimate seasonal and annual water yields. Region of work includes Vermont. Danville includes experimental watersheds near Danville, Vermont. In addition to this study there is also a second study in the same area to study storm run-off and flood flows in relation to the climate and watershed characteristics in this area.

101. Goldthwait, James W. The Need for Study of the Erosion and Accretion at Hampton Beach, prepared for the New Hampshire Commission for Submission to the National Erosion Board, 11 pages.

Background and analysis of natural processes at work; suggestions regarding the scope and methods of such a study.

102. Goldthwait, Richard P. New Hampshire Mineral Resources Survey: Part XI. Artesian Wells in New Hampshire, Mineral Resources Survey, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1949.

This report was an attempt to describe where artesian wells were being drilled all over the state of New Hampshire with concompitant information regarding depth, delivery rates, methods of drilling, and so forth.

103. Graham, Jack B. Water for Industry, Proceedings of the American Association for the Advancement of Science, Boston, Massachusetts, December 29, 1953. Copy not available for review.

104. Haar, C. M. and B. Gordon. Riparian Water Rights vs. a Prior Appropriations System: A Comparison, Boston University Law Review, 38:207-255, 1958.

This is a comparison of present Massachusetts law and proposed Michigan legislation and includes sections on riparian doctrine, water courses, surface water, riparian land, limitations upon water rights, capture of surface waters, pertinent water rights, abandonment of water rights, judicial proceedings to enforce the Michigan Act, evaluation of the Massachusetts Riparian Doctrine, and the underlying philosophies vis-a-vis court or administrative agency and choice of agency.

105. Gordon, B. Legislative Change of Water Law in Massachusetts: A Case Study of the Consequences of Introducing a Prior Appropriation System, in Haber, D., and Bergen, S. W., EDS, The Law of Water Allocation in the Eastern United States, pages 1-62, New York, Ronald & Co., 1958.

This is a comparison of present Massachusetts law and proposed Michigan legislation, with a special note on ground water.

106. Harlemand, R. F. Mechanics of Aeration and Dispersion in River Pollution, Massachusetts Institute of Technology, Cambridge, Massachusetts, CR.

This research is on the reaeration of rivers, as part of the general problem of river pollution. Under controlled laboratory conditions the hydronamic mechanisms of the aeration process are being studied.

107. Hazelton, Jared E. Effluence and Affluence, in New England Business Review, Federal Reserve Bank of Boston, Research and Statistics Department.

This study examines water pollution control in New England. A review of the comprehensive plans developed by New England states in dealing with water pollution problems. An assessment is made of progress made thus far in carrying out these plans. Concludes that pollution abatement should be augmented by greater efforts on the part of state and local government.

108. Interstate Sanitation Commission. "Cleaning Up the Doorway to America": 1936-1956, New York, 1956.

This publication deals with the efforts being made by Connecticut, New York and New Jersey cooperatively over the 20-year period indicated to clean up water resources in those states.

109. Leonard, Robert L. Water Rights in Connecticut: Existing Law and Future Possibilities, January 1966. Copy not available for review.

110. Mader, D. L. Soil and Water Relationships in Forest, University of Massachusetts, Amherst, Massachusetts, CK.

This study is being undertaken to determine the combined effects of different soils and associated vegetation under different types of forest management on interception of precipitation, infiltration, surface movements, percolation, evapotransportation, soil water storage, and subsurface drainage.

111. Masselli and Burford. The Effects of Other Wastes from New Processes of Synthesizing Rayon, Nylon, and other Materials, in cooperation with the New England Interstate Water Pollution Control Commission, Industrial Waste Laboratory, Wesleyan University, Middletown, Connecticut, Boston, Massachusetts, 1958. Copy not available for review.

112. Masselli and Burford. Tannery Wastes and Their Effects in Water Pollution, in cooperation with the New England Interstate Water Pollution Control Commission, Industrial Waste Laboratory, Wesleyan University, Middletown, Connecticut, Boston, Massachusetts, 1958. Copy not available for review.

113. Maquire and Associates. The Water Needs of Rhode Island, for the Rhode Island Water Resources Commission, Providence, January 1952. Copy not available for review.

114. McClelland, Donald. The Economics of Multi-Purpose Development of the Connecticut River, Doctoral Dissertation, Harvard University, Department of Economics, June 1949. Copy not available for review.

115. McLaughlin, R. T. Minimum Cost Design of Pipe Networks, Massachusetts Institute of Technology, Cambridge, Massachusetts, CR.

Marginal analysis by means of a digital computer is used to find the pipe network that delivers prescribed amounts of water at fixed points with a minimum cost of network and pumping.

116. Metcalf and Eddy. Water Needs, Water Resources Coordinating Board of Rhode Island, Boston, Massachusetts, 1957. Copy not available for review.

117. Metropolitan District Water Bureau. One Hundred Years of Water Supply, Hartford County, Connecticut, 1955, 27 pages. Copy not available for review.

118. Massachusetts Legislative Research Council. Report Relative to Rights, to Surface and to Sub-Surface Water in Massachusetts, February 1957, 128 pages.

Several selected chapters in this deal with water law in Massachusetts; riparian doctrines and water resources, management programs in Massachusetts and other states; and problems that the state must face.

119. Massachusetts State Department of Public Health and the Metropolitan District Commission. Report of the Joint Board Relative to Water Supply Needs and Resources of the Commonwealth of Massachusetts, January 1922.

This report includes the uses of flood waters for water supply purposes, filtration of surface water, use of great ponds; investigation of new sources of supply; water supply of various districts in Worcester. The report gives water supply requirements in the metropolitan water districts; adequacy of sources of supply including requirements of cities and towns within and without the 10 mile limit of the state house; new sources of supply, proposed works and their cost, and the water supply of southeastern Massachusetts, and profiles of rivers and reservoirs and of water supplies. Very detailed maps of the entire water supply in the State of Massachusetts are included.

120. Massachusetts State Planning Board. Study of Sudbury River and its Environs, Boston, Massachusetts, December 1949.

This report described the Sudbury River and the lands and waters connected with it, including the condition of the river and possible future use, development or improvement, especially with respect to the level of the River, the condition and rate of flow, and natural life found adjacent and the conditions affecting agriculture, health, convenience and recreation of the inhabitants of adjoining areas. (This study was required by Chapter 34 of the Resolves of 1949.)

121. Massachusetts State Planning Board. Report of the Sudbury Valley Com-

mission Relative to the Sudbury River and Its Environs, 1950, Legislative Document House No. 2351.

This contained recommendations for flood control, low water control, pollution abatement, recreational development, encouragement of residential and commercial growth, mosquito control and agricultural land improvement.

122. New England Interstate Water Pollution Control Commission. 15th Annual Report, 1952.

This is generally a "public appeal-type" of publication. It does, however, give some relevant information regarding classifications and standards of water quality for interstate waters. The status of sewage treatment in all of the New England states and part of New York State adjacent to New England, and the federal construction grant program projects in the New England "compact" area where the location, type, and estimated cost, and the federal grant is listed for each water project.

123. New England Interstate Pollution Control Commission. Pollution from Synthetic Fibers, Wesleyan University, Middletown, Connecticut, June 1956. Copy not available for review.

124. New England-New York Interagency Committee. Industrial Water Supply Inventory of New Hampshire, 1952.

Survey sheets for each industrial plant showing source, amount used, treatment facilities, and purpose of use.

125. New England Regional Planning Commission. The Rivers Speak, National Resources Planning Board, Region I, Publication No. 65, Boston, Massachusetts, January 1942.

This report was prepared in the light of the defense crisis which existed at the time, and that increased domestic and industrial pollution in many streams, and looked to obtain a united practical attack on the waste disposal problem.

The report deals with the problems of lack of authority to control pollution, and gives estimates of the costs of reducing pollution in some streams with estimates of annual financing and operating expenses overall of 50¢ to $1.25 per capita per year. Several maps are included in the report on the relative pollution loads carried by New England streams at that time, and a classification of streams showing existing conditions and proposed improved conditions in the "Rainbow River"--a hypothetical river basin with a proposed stream classification indicated. The report sets forth a sample pollution abatement plan; the responsibilities of state and federal agencies; and the report of a special subcommittee of the classification of New England waters. A bibliography is included which gives sources of quantitative data on existing sanitary conditions in New England streams. This lists publications undertaken in most of the New England states for the 1930-1939 period, with some inclusion back to 1920. In addition it lists 6 unpublished manuscripts and memoranda from each New England State Board of Health/planning boards.

126. New Hampshire Department of Health. Estimated Water Consumption for 1960, Seacoast Area, May 9, 1957. Copy not available for review.

127. New Hampshire State Planning and Development Commission. The Great Bay Plan - A Report to the 1945 Legislature, March, 1945.

The purpose and objectives of the study are defined and recommended development programs are enumerated. Included are such factors as access, pollution, fisheries, erosion, land use, and costs of development.

128. New Hampshire Planning and Development Commission. New Hampshire Water, Governmental Responsibilities and Activities in Relation to the Water Resources of New Hampshire, New Hampshire Planning and Development Commission, Council on Resources and Development, 1954.

An investigation of present policies and practices of agencies involved in water resource development. Includes such factors as flood control, navigation, water supply, beach erosion, recreation, hydroelectric power, and public health.

129. New Hampshire State Planning and Development Commission. A Suggested Program for the Redevelopment of the Weirs, New Hampshire, Concord, New Hampshire, February 1947.

This is a study of the waterfront area near Laconia, New Hampshire called the Weirs. An assessment is made of the characteristics of the area, projections of potential use of the area, and a master plan for the development of the area for future use is presented.

130. New Hampshire State Planning and Development Commission. Study of the Development of Lake Winnipesaukee, December 1948.

This study included a description of the character, type, and extent of development around the lake, of the valuation of property, the extent of public rights of way to water; the availability of lands for public acquisition and development and of possible improvements to navigation by small boats.

131. New Hampshire State Planning and Development Commission. A Plan for

the Development of the State Property at Pawtuckaway Lake, August, 1958, Concord, New Hampshire.

The purpose of this study was to provide an integrated plan for the development of the state-owned property at Pawtuckaway Lake. The study considered the potential use of the state holdings and also recognized the role of existing private developments.

132. New Hampshire State Planning Project. Land Water & Recreation, Report No. 1, Baker River Watershed, State of New Hampshire, Concord, New Hampshire, March, 1964.

This report gives an inventory and development potential for the Baker River watershed area. This report deals with proposed dam sites and reservoirs with the best potential for development in the Baker River watershed. It reviews the location and topography of the watershed, the towns and river in it, the people, that is to say the population; highways, general economic conditions including industry, agriculture, forestry, vacation, recreation; reviews the potential for economic development of industry, agriculture, etc., and provides maps and graphs relating to the area.

133. New Hampshire State Planning Project. Land, Water & Recreation--Report No. 10, the Water Resources of New Hampshire, Concord, New Hampshire, September, 1965.

This report attempts to identify water resource problems of supply and demand; flood control and watershed management and power; pollution; and recreation. It reviews the legislature machinery which is available to work on these problems and presents planning recommendations. The report purports to supply an economic analysis of water supply and demand and the economics of water in New Hampshire. It does not supply an economic analysis of water supply and demand in New Hampshire; that is, there are no parameters or coefficients derived for any specific water uses and in this the report is deficient.

The report estimates total projected requirements of expanded population in New Hampshire in terms of millions of gallons of water required per day. The projections from 1960 through the year 2000, as might be expected, are somewhat linear in nature. This means that the report has neglected essentially the possibility of more expensive water in the future as opposed to the relatively inexpensive water now available for all varieties of consumption.

134. New Hampshire Water Pollution Commission. Staff Report on Piscataqua River Watershed, Concord, 1960, 2 Volumes.

In addition to this, there is a progress report dated February, 1959.

135. New Hampshire Water Pollution Commission. Staff Report on Coastal Watersheds, Concord, New Hampshire, July, 1965, 58 pages.

Pollution control progress to 1964; a general description of watersheds; methods of investigation; data and interpretations.

136. Puterbaugh, H. L. and Kottke, M. W. Technical and Economic Characteristics of Irrigation on Connecticut Farms, Agricultural Experiment Station Bulletin No. 340, March 1959, 42 pages, Storrs, Connecticut.

Included in this report is a discussion of answers to questions on water rights. (15 pages)

137. Rhode Island Development Council. A Water Resources Program for Rhode Island, Water Resources Memo No. 3, Planning Division, February, 1954, 17 pages.

138. Rhode Island Development Council. The Rhode Island Shore, A Regional Guide Plan Study, with the assistance of a Federal Urban Planning Grant from the Urban Renewal Administration, Housing and Home Finance Agency, March, 1956.

This is a projective analysis from the years 1955 through 1970, and deals with patterns that were present at that time in Rhode Island in regional, shore line, land, housing, recreation, and other characteristics. The report lists development trends in land use, population and housing; tourism, employment, and city and town projections. It goes to deal with overall transportation systems and deals with rail, air, water and local streets. The report goes on to project the future of the Rhode Island shore region.

139. Rotival, Maurice E. H. and Associates. The Quinnipiac Valley Watershed Development Study, Resources for the Future, Inc. 1958.

A study of the maximum potential water resources development of the watershed for multi-purpose use consistent with sound regional planning. Topics included are: local flood control, future public water supplies, recreation use, pollution abatement, water balances for the valley, and other problems.

140. Sherwood, T. K. Fundamental Studies of Desalinization, Massachusetts Institute of Technology, Cambridge, Massachusetts. CR.

These are a series of fundamental investigations regarding the variables and methods affecting desalinization.

141. Smith, D. D., Determination and Evaluation of Factors Affecting Water

Run-Off and Erosion in the Different Land Resource Areas of the Northeast as Related to Soil and Water Conservation Practices, Plant Industry Station, Beltsville, Maryland. CR.

The object of this study is to evaluate the interactive effects of climate, topographic, vegetative and soil conditions found in the different land resource areas of the northeast on run-off, soil erosion, and percolation, and to develop and evaluate water management practices for the control of these factors. In the glaciated areas of New England, special attention is being given to the effect of rocks and stones on run-off and erosion.

142. Thomas, H. A. Operations Analysis Treatment of Disposal of Radioactive Effluents to Streams, Harvard University, Boston, Massachusetts. CR.

This project is developing an elaborate stochastic model for computer resolution to mathematically simulate the transport of radionuclides through streams and reservoirs.

143. Trimble, George R., Jr. A Problem Analysis and Program for Watershed Management Research in the White Mountains of New Hampshire, Station Paper No. 116, Northeastern Forest Experiment Station. U. S. Department of Agriculture, 1959.

This study gives information on a watershed management research program. Discusses the water quality, water quantity, and hydrologic processes in terms of their relationship in the program.

144. Turney, Jack R. and Ellis, Harold H. State Water-Rights Laws and Related Subjects: A Bibliography, Farm Economics Division, Economic Research Service, U. S. Department of Agriculture, Miscellaneous Publication No. 921, December, 1963.

This bibliography is a very thorough one through the period it covers. It gives publications on state water laws, with topics covered; and several supplemental lists of published materials in addition to a publications index and author index, with other water law and related bibliographies included.

145. United States Department of Agriculture. The Yearbook of Agriculture, 1955: Water, Washington, D. C.

This yearbook describes the need for water, sources of water, water in relation to the soil; management of watersheds, water in relation to forests, irrigation, crops, ranges and pastures, gardens, turf, wildlife; and water in assessed needs for farms and cities; and some speculation regarding future regulation and economic expansion, financial responsibility for water management, and research then current on water problems in agriculture.

146. United States Department of Agriculture. *Land and Water Resources - A Policy Guide*, Washington, D. C., May, 1962.

This publication presents a comprehensive study of the present situation regarding land and water use in the United States. A section is included on resource requirements and potentials. A concluding section deals with policies and programs which are recommended relative to land and water use in the United States.

147. United States Department of Agriculture, Soil Conservation Service. *Water for Your Community Progress Through Watershed Production*, New Hampshire, 1965.

This is a popularized explanation of numerous water programs going on in the State of New Hampshire where watershed help under PL 566 can be obtained and soil conservation service and county agricultural agents offices in the State of New Hampshire.

148. United States Army Corps of Engineers. *Water Resources Development in Vermont, New Hampshire, Rhode Island, Connecticut, Massachusetts, and Maine*, U. S. Army Engineer Division, New England region, January 1, 1965.

This is a series of six booklets each about 50 pages in length, and describes the work of the Corps of Engineers in each state. It provides information on investigations, navigation works, shore protection works, flood control works, small projects and emergency works, lake survey charts, basin-wide planning, flood plain information studies, public use and recreation. It describes projects completed, those in progress, those that are inactive and those that are currently being carried on in addition to projects planned.

149. United States Department of Agriculture, United States Congress Senate Select Committee on Natural Water Resources. *Water Resources Research Needs*, G. P. O., Washington, D. C., 1960, 15 pages. Copy not available for review.

150. United States Department of Health, Education and Welfare, Public Health Service. *Municipal Water Facilities, 1963 Inventory*, A cooperative State-Federal Report, Publication No. 775 (revised), Volume 1, Washington, D. C., 1964.

This report furnishes information on all water facilities for the use of industry, private agencies, and all levels of government. Data is provided for all New England states on population served, ownership of facilities, numbers of services and meters, sources of supply, safe yields, plant treatment of water, and improvements needed.

151. United States Geological Survey, and Lohr and White. The Industrial Utility of Public Water Supplies in the New England States, Washington, D. C., 1953. Copy not available for review.

152. United States Department of Interior. Wet Lands of New Hampshire, Fish and Wildlife Service, Office of River Basin Studies, Region 5, Boston, Massachusetts, June 1954.

This study lists and identifies inland fresh water areas, coastal, fresh water and salt water areas, as related to wildlife habitats in the area, particularly water fowl.

153. United States National Resources Committee. Water Planning, G. P. O., Washington, D. C., February 1938, 40 pages. Copy not available for review.

154. Wright and Potter. Proceedings of the Massachusetts Water Resources Commission for Planning, December 30, 1958, Boston, Massachusetts, 1959. Copy not available for review.

B. Flood Control, Power, and Navigation

155. Arris, George H. Water Power--Myth or Fact? Providence Journal Bulletin, Providence, Rhode Island, Dec. 1949.

This analysis gives a site-by-site estimate of hydroelectric power on 21 New England rivers in terms of engineering, but not necessarily economic feasibility for development; it includes figures computed for engineering purposes and some rough estimates of the power levels economically feasible for the same rivers.

156. ————————. Report Upon Storage and Power Projects in the State of New Hampshire, Boston, Massachusetts, March 1934, 14 pages.

A critique on the Metcalf and Eddy report of January 29, 1934, titled, "Conservation of Waters in New Hampshire."

157. Barows, H. K. Report Upon Power Storage Regulation of Flow, Connecticut River, Easterly Tributary Streams in New Hampshire, Boston, Massachusetts, September 12, 1933, 26 pages. Copy not available for review.

158. Connecticut Port Survey Commission. Economic and Engineering Survey of All Navigable Waters in the State of Connecticut, New Haven, Connecticut, November 1946.

This study covers the benefits that were to be derived from all navigable waters in the State of Connecticut and provided recommendations for improvements.

159. Commission on Waterways and Public Lands. Report on the Water Resources of the Commonwealth of Massachusetts, Boston, Massachusetts, Massachusetts Senate Document No. 289, Year 1918.

This investigation is comprised of 1) an inventory of the amount and location of the potential water power of the State of Massachusetts; 2) an inventory of the existing water power developments; 3) an examination of the undeveloped stretches of the rivers in Massachusetts; 4) an inquiry into the uses of the various lakes and ponds and 5) an investigation of possible storage reservoir sites. The report is confined to the rivers and streams in Massachusetts; however, considerable information relating to the upper reaches of the rivers that are outside the state was incidentally obtained and placed on file in this record. This gives rainfall and run-off statistics, descriptions of all the watersheds and storage investigations in the state, including maps, profiles and statistical data on run-off. It also gives proposed dam sites, and time-flow curves showing regulated and unregulated flows.

160. First National Bank of Boston. Waterfront Industries of New England, Boston, Massachusetts, November 1947.

This study outlined the industries benefiting from lower cost water transportation and the special services which were then available from the port of Boston. The study also gave a selection of sites in the greater Boston port area.

161. Lee, James A. The Waterways of New Hampshire: Their Types and Distribution, Concord, New Hampshire, 1956.

This gives a report on the acreage and mileage of waterways, town and county physical and biological data for various types of waterways in each county and town, and the same type of data for ponds, bays, lakes, marshes, and so forth.

162. Maine Development Commission. Let's Get All the Facts About Quoddy! State House, Augusta, Maine, June 1950.

This booklet is a popularized item designed to spread material about the international Passamaquoddy power project.

163. New Hampshire State Planning Project. Land, Water and Recreation, Report No. 4, 1964 Data Book, Concord, New Hampshire, 1964.

This report deals with New Hampshire water bodies and public access points. It gives these water bodies and access points by water body name, all along the Atlantic Coast and Great Bay. Water bodies and restricted access points are also given by municipality and there are approximately 140 maps of public access points on New Hampshire water bodies included. This is basically an inventory compilation.

164. Northeastern Forest Experiment Station. *Flood Control Survey of Connecticut River Watershed*, Philadelphia, Pennsylvania, July 1948.

This report covered the possibilities of controlling run-off and erosion through primarily land use management and minor engineering structures. It described the watershed, discussed the economy, and outlined activities being carried on at that time contributing to flood control. It included estimates of flood damage to the economy of the watershed, plans for improvement, and costs and benefits estimated for proposed action programs.

165. Pierce, R. S. *Flood Run-Off Reduction and Water Yield Improvement from the Glaciated Mountain Areas of New England*, Laconia, New Hampshire.

The objective of this study is to determine the influence of forest environment and its associated climatic features on stream flow and to study biological manipulation to alleviate stream flow extremes (floods and low floods) in the glaciated mountainous regions of New England without damaging water quality.

166. Rogers, George B. *Effects of Flood Control Projects on Agriculture, I, Reservoir Areas*, Station Bul. 449, April 1958, Agr. Exp. Sta., University of New Hampshire.

This study reports an analysis of the effects of four flood control projects in New Hampshire in terms of the impact on agriculture in reservoir areas. The study explores methods and means of minimizing adverse effects from present and future projects.

167. Rogers, George B., William F. Henry, and George E. Frick. *Effects of Major Floods and of the Surrey Mountain Dam on Agriculture, Aschelot River Valley, New Hampshire*, Agricultural Economics Research Mimeograph No. 21, Agr. Exp. Sta., University of New Hampshire, Dept. of Agr. Econ. in cooperation with the USDA, Agricultural Research Service, Farm Economics Division, July 1958.

This study appraises the effects of the Surrey Mountain Dam on agriculture in the downstream areas of the Aschelot River Valley. The study identifies problems which may distinguish experiences with Federal control projects of farmers in smaller river valleys such as the Aschelot from the experiences of farmers in larger river valleys such as the Merrimack.

C. Ground Water Resources

168. Allen, William B. Rhode Island Cooperative Ground Water Survey Report for 1951, Water Resources Memorandum No. 1, U. S. Department of the Interior Geological Survey, in Cooperation with the Rhode Island Development Council Planning Division, September 1952.

The purpose of this study was to obtain information regarding the occurrence and availability of ground water resources throughout the State of Rhode Island 1) to ascertain the areas capable of supplying large quantities of water for industrial and municipal development 2) to determine which of the readily available supplies are not being utilized fully, and 3) to measure and study the trend of water levels and observation wells in order to determine where the ground water resources of the state are being depleted. This report includes water use at that time and the potential supply projections of ground water, and also contains index maps of Rhode Island showing areas covered by the geological bulletins, ground water reports. A map showing Rhode Island shows promising areas for moderate to large ground water development.

169. Allen, William B. Ground Water Resources of the East Greenwich Quadrangle, Rhode Island, for the Rhode Island Development Council, Geological Bulletin No. 18, 1956.

This is a thorough analysis of the climate, topography, geology, ground water occurrence and availability, utilization by public, industrial, and domestic and farm sectors of ground water and the quality of the water and future ground water developments. It includes many illustrations for the above named quadrangle.

170. Bierschenk, William H. Ground Water Resources of the Bristol Quadrangle, Rhode Island, Massachusetts, Geological Bulletin No. 7, Rhode Island Development Council, 1954.

The results of ground water investigations in the Bristol Quadrangle in Rhode Island and Massachusetts. It involved the determination of the location and nature of principal ground water bodies in the state and collection and interpretation of available data bearing on the occurrence, source, quality, and availability of ground water.

171. Bierschenk, William H. Resources of the Kingston Quadrangle, Rhode Island, Geological Bulletin No. 9, prepared by the U. S. Geological Survey, in cooperation with the Rhode Island Development Council, 1956.

Analysis of the climate, topography, geology, ground water occurrence, and availability, water utilization by sectors, water quality, and future ground water developments in the Kingston Quadrangle.

172. Bierschenk, William H. Ground Water Resources of the Providence Quadrangle, Rhode Island, Rhode Island Geological Bulletin No. 10, U. S. Geological Survey in cooperation with the Rhode Island Development Council and the Rhode Island Water Resources Coordinating Board, 1959.

Reports on water-bearing formations, related ground water data, and the occurrence, quantity, quality, and availability of ground water.

173. Bradley, Edward. Geology and Ground Water Resources of Southeastern New Hampshire, U. S. Department of the Interior, Geological Survey, Washington, D.C., U.S. Government Printing Office, 1964, 80 pages and maps.

Covers the seacoast region of 390 square miles adjacent to the Atlantic Ocean all in Rockingham and Strafford Counties.

174. Bradley, Edward and Richard G. Petersen. New Hampshire Basic Data Report No. 1, Ground Water Series, Southeastern Area, U.S. Department of the Interior, Geological Survey, 1962, 53 pages and maps.

This includes well numbering and location systems, records of selected wells and test holes in southeastern New Hampshire; and chemical analyses of water samples.

175. Camp, Dresser & McKee. Report on Metropolitan Water Supply for the Seacoast Area, Boston, Massachusetts, December 29, 1952, 51 pages.

This is a result of an engineering investigation of 3 alternate sources of supply for the metropolitan water district, namely the Isinglass River, and Lake Winnipesaukee and ground waters.

176. Connecticut Development Commission. Water--A Resource Inventory, Technical Report 124, May 1963.

NA--reference at Connecticut State Library. This study inventories certain aspects of water resources of Connecticut as part of a state-wide inventory of factors relating to the growth of Connecticut. The study contains an analysis of sources of water for the state, location of water bodies, usage, characteristics, and special problems and recommendations concerning the water resource. The agencies concerned with water resources in Connecticut are listed and the report contains an appendix with detailed tables regarding the water resource.

177. Goldthwait, Richard P. (Studies by J. W. Goldthwait, D. H. Chapman, and L. Goldthwait). Artesian Wells in New Hampshire, Part II of the New Hampshire Mineral Resource Survey, New Hampshire State Planning and Development Commission, November, 1949.

This is a brief report on findings by drillers of artesian wells.

178. Harleman, D. R. F. Waste Water Recharge and Dispersion and Porous Medium, Massachusetts Institute of Technology, Cambridge, Massachusetts, CR.

This project is particularly concerned with dispersion phenomena such as would occur near the face of a recharge well.

179. Meyers, T. R., and Edward Bradley. New Hampshire Mineral Resources Survey: Part XVIII, Suburban and Rural Water Supplies in Southeastern New Hampshire, Mineral Resources Survey, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1960.

The major purpose of this paper was to review basic principles of the occurrence of ground water especially as related to private water supplies in southeastern New Hampshire. The major purpose was to provide residents in New Hampshire information regarding the nature of local water supplies in order to aid him in the most effective utilization of these resources.

180. Rhode Island Development Council. Ground Water Resources of Rhode Island, Geological Bulletin No. 6, R. I. Development Council in cooperation with the U. S. Geological Survey, 1953.

A study of ground water resources in Rhode Island to be used as a guide in location and expansion of water facilities for industry and municipalities.

181. Rhode Island Port and Industrial Development Commission. The Geology and Ground Water Resources of the Pawtucket Quadrangle, Rhode Island, Geological Bulletin No. 3, January 1950.

This study includes a detailed report on the bedrock, surficial geology and ground water conditions of the quadrangle.

182. Rhode Island Port and Industrial Development Commission. The Geology and Ground Water Resources of Woonsauket, Rhode Island, Geological Bulletin No. 5, January 1950.

This report includes the detailed report on the bedrock, surficial geology and ground water conditions of the city.

183. Stewart, G. W. and Carol Ouellette. Progress Report on Rock Well Survey in New Hampshire, Concord, New Hampshire, November 1964, 10 pages.

Well water data by town, including the number of wells, average depth, and yield, average depth to bed rock, deepest and shallowest wells.

184. United States Department of Interior. Surface Water Records of Massachusetts, New Hampshire, Rhode Island and Vermont. Water Resources Division, Boston, Massachusetts, 1964, 239 pages.

This report gives gauging station records by river basins.

185. United States Department of Interior, Geological Survey. Surface Water Records of Massachusetts, New Hampshire, Rhode Island and Vermont, Water Resources Division, 1963.

The surface water records for the 1963 water year for gauging stations and partial-record stations within the above mentioned states are given in this report. The report also includes records for a few pertinent gauging stations in bordering states and the province of Quebec.

IV. Mineral Resources and Development

A. Geology, General

186. Billings, Marland P. Geology of the Littleton and Moosilauke Quadrangles, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1935.

This report describes efforts that had been made in by-gone days to establish and maintain a mining industry. Slate, granite and soapstone had all been obtained within the above named area at one time. Lime was formerly obtained in the area from the limestones of the fitch formation. Magnetic iron ore was discovered and opened at Ore Hill, Lisbon, at about 1805. Gold was discovered in 1864 in a small vein on the south side of Trevina Hill and in several other places; it was estimated that between 1868 and 1878 $50,000 worth of gold had been recovered from the various properties in the region. A map is included.

187. Billings, Marland P. and Charles R. Williams. Geology of the Franconia Quadrangle, New Hampshire Mineral Resources Survey: Part XX, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1935. OP. Copy unavailable for review.

188. Billings, Marland P., Katharine Fowler-Billings, Carleton A. Chapman, Randolfe W. Chapman, and Richard P. Goldthwait. Geology of the Mount Washington Quadrangle, New Hampshire Mineral Resources Survey: Part XXV, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1946. Copy unavailable for review.

189. Chapman, Carleton A. Geology of the Sunapee Quadrangle, New Hampshire Mineral Resources Survey: Part XXVII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1953. NA. Copy unavailable for review.

190. Chapman, Randolfe W. The Geology of the Percy Quadrangle, New Hampshire, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1949.

In addition to the usual rock formation information the report states that the Percy Quadrangle has few if any mineral resources of great value. It states that in the early part of the present century, copper, gold and silver were obtained in small quantities from the Milan mine in the southeast part of the quadrangle. These ores were depleted. The report states that there are some intrusives of feldspar and white mica in very small quantity, and that sand and gravel deposits are numerous especially along the valley of the upper Ammonoosuc River. It states that the Percy Quadrangle has a practically inexhaustible supply of good building stone known as the Conway granite.

191. Fowler-Billings, Katharine. Geology of the Isles of Shoals, New Hampshire Mineral Resources Survey: Part XXIII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1959. OP, NA. Copy unavailable for review.

192. Fowler-Billings, Katharine. Geology of the Monadnock Quadrangle, New Hampshire Mineral Resources Survey: Part XXIV, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1949. NA.

193. Fowler-Billings, Katharine, and Lincoln R. Page. The Geology of the Cardigan and Rumney Quadrangles, New Hampshire, New Hampshire State Planning and Development Commission, Concord, New Hampshire, June, 1942.

In addition to the geology and formation of this area the economic resources of the Cardigan region are listed as feldspar, mica, beryl and garnet. Other economic products are building stone from the local rocks of the region, especially from the fine-grained grey Concord granite. There are also abundant sand and gravel deposits in the area that are used for road building.

The economic resources of the Rumney Quadrangle include mica, feldspar and beryl from the pegmatites in the North Groton-Cheever-Rumney area; copper, lead, zinc and mica from the Ore Hill mine west of Warren; building stone, notably from the Concord granite at Quincy in the town of Rumney; chicken grit from the Bethlehem Gneiss; and sand and gravel from the

Baker River and tributary valleys. Included is a map and several references.

194. Freedman, Jacob. The Geology of the Mount Pawtuckaway Quadrangle, New Hampshire, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1950.

In addition to geological formation information, the report states that feldspar, mica and beryl occur in the pegmatite dykes in the quadrangle. The Smith quarry in the southwest corner of the quadrangle was producing feldspar and a small quantity of beryl in 1950. There was a possibility at that time of more quarries being opened. Some possibilities of the exploitation of quartz in the Flint Hill region was mentioned in the report; unsuccessful gold mining operations north of Saddleback Mountain were mentioned; and it was estimated that there was granite in the area in amounts that were probably sufficient to warrant production for only local use. Peat deposits were investigated by the state geologist and large reserves were established, but there had been no production of peat at that date. The report states that sand and gravel deposits are scattered over the quadrangle and are used locally. In the northeast part of the quadrangle the sand and gravel of the outwash plain was being utilized commercially. A map is included.

195. Hadley, Jarvis B. and Carleton A. Chapman. The Geology of Mount Cube and Mascoma Quadrangles, New Hampshire, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1939.

In addition to geological formation information the following minerals were listed in the report: granite, which was being quarried north of the town of Lebanon; limestone, occurring in the fitch formation near Quinttown; slate, which was a rather poor grade, being for the most part not true slate but a fine-grained schist; whetstone; soapstone; and amphibolite, which is a fine-grained dark green rock which was speculated on at that time as possibly replacing crushed rock in the construction of impervious-surfaced roads; sand and gravel banks, relatively free from silt and boulders but generally too impure to be used in the manufacture of glass in the case of the sand; clay, not being exploited but in abundant supply in the vicinity of the Connecticut River; feldspar and mica that had been prospected to some degree and which the author felt might some day be profitably mined; and uraninite, a source of radium, that had been found in pegmatite formations in the Cardigan Quadrangle to the east but was of undetermined quantity. A map is included.

196. Hatch, Norman L. Geology of the Dixville Quadrangle, New Hampshire Mineral Resources Survey: Part XXIX, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1963. NA. Copy unavailable for review.

197. Heald, Milton T. Geology of the Gilmanton Quadrangle, New Hampshire Mineral Resources Survey: Part XXI, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1955. NA. Copy unavailable for review.

198. Heald, Milton T. The Geology of the Lovewell Mountain Quadrangle, New Hampshire, New Hampshire Planning and Development Commission, Concord, New Hampshire, 1950.

In addition to the geological formation and history of this area, the minerals listed in quantity in the Lovewell Quadrangle are feldspar and mica, occurring in large veins of pegmatite in the western part of the area. These minerals had been mined at eight localities but the mines were not in production in 1950. In addition to the feldspar and mica being obtained, minor amounts of beryl and spodumene occurred some of the pegmatites. Extensive use was being made at the time of this publication of the sand and gravel, of which there were large deposits among the main streams in the area, for road material.

199. Inventory of Minerals. Connecticut State Geological and Natural History Survey, Hartford - New Haven, 1961. NA. Copy not available for review.

200. Kruger, Frederick C. The Geology of the Bellows Falls Quadrangle, New Hampshire and Vermont, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1946

This report lists the minerals of economic or possible economic value in the Bellows Falls Quadrangle as feldspar, mica, beryl, quartz, graphite, trap-rock, granite, sand and gravel.

201. Lyons, John B. Geology of the Hanover Quadrangle, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1958. NA. Copy unavailable for review.

202. Moke, Charles B. Geology of the Plymouth Quadrangle, New Hampshire Mineral Resources Survey: Part XXVI, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1946. NA. Copy unavailable for review.

203. Moore, George E., Jr. The Geology of the Keene-Brattleboro Quadrangle, New Hampshire and Vermont, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1949.

In addition to the geological formation and history, this publication includes a list of the economic resources and mineral localities of the quadrangle. The minerals and rocks of economic or potential economic value at that time in the Keene-Brattleboro area include feldspar, flurite, mica, sand and gravel, slate, flagging-stone, building stone, and soapstone. In addition to these minerals and rocks, there are a variety of minerals listed that occur in small quantities in the area, such as anthophyllite, graphite, garnets, staurolite, and sollimanite. A map is included of the area.

204. Quinn, Alonzo. Geology of the Winnipesaukee Quadrangle, New Hampshire Mineral Resources Survey: Part XXVIII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1941. NA. Copy unavailable for review.

205. Quinn, Alonzo. Geology of the Wolfeboro Quadrangle, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1953.

This report does not give an economic evaluation of the potential or the currently mined stones and rocks and minerals in the Wolfeboro Quadrangle. It does, however, list the geology of the area and the formation of the rocks. A map is included.

206. Quinn, Alonzo. The Geological Survey Program in Rhode Island, Department of Geology, Brown University, Water Resources Memo No. 2, Rhode Island Development Council Planning Division, September, 1952.

This is a descriptive report regarding the need for geological studies that Professor Quinn felt existed, in that the industrial commission found their work of locating industries in the state raised many questions concerning ground water supplies, the type of bedrock, drainage, foundation conditions and other similar problems. The geological work was divided into three groups of investigation: bedrock geology, surficial geology and ground water studies.

207. Smith, Althea P., Louise Kingsley and Alonzo Quinn. The Geology of Mount Chocorua Quadrangle, New Hampshire, New Hampshire Planning and Development Commission, Concord, New Hampshire, 1939.

In addition to the geological processes involved in this quadrangle there are useful minerals listed. Rocks of minerals of economic value, however, in the Mount Chocorua Quadrangle are not abundant. The report states that over large areas the bedrock is buried under sand, gravel and glacial till, and that there is the possibility of some hidden resource that will be discovered only by penetrating through this surficial material. At the time of this report there was no evidence of precious metals in this quadrangle in sufficient abundance to be of economic value. Sand and gravel are given as probably the most valuable potential resource of the quadrangle. A map is included.

208. State Planning Project, Concord. The Geology of New Hampshire, Concord, New Hampshire, 1951 and 1956, three parts.

Part I - Surficial Geology; Part II - Bedrock Geology; Part III - Minerals and Mines.

Part III - A list of all known New Hampshire minerals and mines with descriptions of each. A summary of the mineral industry of New Hampshire is included with a brief review of present and past production. Mine locations are shown on the map included.

209. Stewart, Glenn W. The Geology of the Alton Quadrangle, New Hampshire, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1961.

In addition to the geological formation and maps for this area, the report states that the only active mineral industries in the Alton Quadrangle at that time were sand and gravel operations located in the glacial deposits. The report mentions that ground water is a valuable commodity in the quadrangle and Farmington is supplied by water from the glacial gravels southeast of the village. It states that several hundred tons of feldspar were mined from 1936 to 1938; and as recently as the summer of 1959 mica was being mined at the Parker Mountain mine and for the first time beryl as well. Small amounts of flagstone with large andalusite crystals had been quarried in Farmington and sold for walks and rock gardens. The report mentions that some granite ledges had been prospected, but no active quarry had been developed up to that time. Peat had been excavated intermittently from a bog northwest of Chesley Mountain in Farmington.

210. Vermont Geological Survey. Report of the State Geologist on the Mineral Industries and Geology of Vermont, 1898 through present.

This report deals with mainly the marble, slate and granite resources of Vermont.

B. Mines and Mineral Resources

211. Bannerman, Harold M. General Summary, New Hampshire Mineral Resources Survey: Part I, New Hampshire State Planning and Development Commission, 1940.

This report notes that in 1940 New Hampshire's mineral industry was small and that the annual yield from the mineral industries in 1937 was estimated at $1.2 million. The bulk of these monies came from stone quarry and clay operations, with sand and gravel and feldspar following in importance. Three types of stone, clays, and gravel accounted for about 82% of the total mineral wealth produced in the state at that time. The report lists the importance of various other types of minerals and rocks being mined at that time, and the areas where each particular type of mineral was being mined in the state.

212. Bannerman, H. M. The Fluorite Deposits of Cheshire County, New Hampshire, New Hampshire Mineral Resources Survey: Part V, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1941.

Fluorite being of wide use in the chemical, ceramic, and metallurgic industries and also being the only important source of fluorine making it essential in the manufacture of hydrofluoric acid was investigated in this report. The largest deposits were in the towns of Westmoreland and Chesterfield, Cheshire County, with some small production in North Chatham. The report includes a description of the mining operations and maps of the locality of the mineral deposits of fluoride.

213. Bannerman, H. M. Sillimanite, Andalusite, Kyanite; and Mica Schist Deposits, Preliminary Report, New Hampshire Mineral Resources Survey: Part IV, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1941.

These minerals which are three aluminum silicates have a common use in the ceramic industry. At the time all of these minerals were in demand for high grade refractory porcelain. The report notes that sillimanite was deposited throughout the Moosilauke, Rumney, Plymouth, Cardigan and various other quadrangles in the State of New Hampshire at that time and was worthy of consideration as a potential source of large income-producing operations.

214. Bannerman, H. M. Ore Hill Zinc Mine, Warren, New Hampshire, Concord, New Hampshire, 1943, reprinted 1962.

This is a short outline of the history of the above region and its characteristics.

215. Bannerman, H. M. Structural and Economic Features of Some New Hampshire Pegmatites, New Hampshire Mineral Resources Survey: Part VII, Dartmouth College, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1943.

This report deals with granite pegmatite deposits which have as their mineral composition mainly feldspar, quartz, and mica, but also carry relatively large amounts of rare chemical elements such as phosphorous, boron, fluorine, lithium, ceisium, and many others. From an industrial point of view, the pegmatites contain some of the most important types of mineral deposits in the state. The report describes the location of pegmatite deposits and some of the values of minerals derived from pegmatite deposits at that time.

216. Chapman, Donald H. Clays of New Hampshire, New Hampshire Mineral Resources Survey: Part XII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1950.

This report describes the origin and some of the clay deposits in the State of New Hampshire.

217. Emmons, S. F. The Mines and Mineral Resources of Maine, 1908, OP., NA. Copy not available for review.

218. Fowler-Billings, Katherine. Sillimanite Deposits in the Monadnock Quadrangle, New Hampshire, New Hampshire Mineral Resources Survey: Part VIII, New Hampshire State Planning and Development Commission, 1944.

This report lists sillimanite which is one of three main aluminum silicates used in the manufacture of porcelain as being found in considerable quantities of the schists of the Monadnock Region of New Hampshire. It describes location and provides maps of major deposits.

219. Goldthwait, J. W. Mineral Compositions of New Hampshire Sands, New Hampshire Mineral Resources Survey: Part IX, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1948.

The results of the mineral counts in this survey described quartz as being the most abundant mineral found in the sands, feldspar was second in abundance to quartz; slate and schist particles were much less widely distributed and abundant than the report states could be suggested from the geological maps that are provided for, the area at that time. Quartzite, mica, and garnet were of relatively small importance as a mineral element in sands.

220. Goldthwait, L. Glacial Till in New Hampshire, New Hampshire Mineral Resources Survey: Part X, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1948.

This report is mainly descriptive in nature and is mainly concerned with the way in which glacial till came to exist in New Hampshire.

221. Goldthwait, Lawrence. Clays of Southeastern New Hampshire - A Preliminary Report, New Hampshire Mineral Resources Survey: Part XV, published by the New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1953.

This report describes origins, nature, and the location of clays in southeastern New Hampshire; it includes some mention of the economic aspects of clay deposits in terms of the uses of clay in various industries and the relation of water supply problems to clay deposits. It also describes the distribution of clay in association with several aspects of agriculture. It describes some of the economic aspects of New Hampshire marine clay at that time, including a most pressing problem of inadequate water supply in areas covered by marine clay.

222. Goldthwait, Lawrence. Sands of the Merrimack Valley, New Hampshire Mineral Resources Survey: Part XVI, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1957.

This report describes the geologic history of the Merrimack Valley, the nature of the sands in it, the uses for sands, maps, and physical characteristics of New Hampshire sands in general.

223. Larrabee, D. M. Mines and Minerals of New Hampshire, 1929, pp. 113-177.

This is available in a carbon copy, and gives a description of miners and their prospects, and a description of outcrops among other things.

224. McNair, Andrew H. Diatomaceous Earth, Preliminary Report, New Hampshire Mineral Resources Survey: Part II, New Hampshire State Planning and Development Commission, 1941.

This report describes the product of diatomaceous earth as being a white powder. The purest and most valuable deposits of this mineral occur on the west coast. It occurred or occurs in New Hampshire in soft sediment in fresh water ponds; in swamps it resembles a brown ooze containing much organic matter which must be burned before it can be utilized commercially. All the New Hampshire deposits are of this organic type. Diatomaceous earth has many uses in food products, mineral oils, in cement, and in insulation, in soaps and cleaning polishes and as rubber fillers. The report lists some 16 deposits that were studied during the course of a survey conducted at that time, and implicates these localities on a map.

225. Meyers, T. R. Foundary Sands of New Hampshire - Preliminary Report, New Hampshire Mineral Resources Survey: Part XIII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1950.

This report gives information on the types, properties, production and preparation, geologic distribution, and nature and distribution of New Hampshire foundary sands.

226. Meyers, T. R. New Hampshire's Mineral Industry, 1962: A Summary Report Based Upon a Brief Survey of the Industry, New Hampshire Department of Resources and Economic Development, Concord, New Hampshire, July 1962, 9 pages and appendices.

Growth and nature of mine production, mineral producers are listed, mineral processing, mineral processing plants are listed, and individual minerals are described.

227. Meyers, T. R. Some New Hampshire Quartz Deposits - Preliminary Report, New Hampshire Mineral Resources Survey: Part VI, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1941.

This report found that deposits of sufficient size and purity of quartz for commercial exploitation were present in the state at the time. These were of the silicified zone and quartz pegmatite type. This report includes detailed information on all types of quartz deposits in the state at that time and maps of their location.

228. New Hampshire State Planning and Development Commission. Mineral Resources Survey, 1940-1960, Biennial Report, 1932-1950, 18 parts. Copy unavailable for review.

229. New Hampshire State Planning and Development Commission. Mineral Resources in the Lakes Region, report of the Mineral Resources Committee, Lakes Region Survey, 1945, reprinted with corrections, 1949, 12 pages.

Mineral Resources Survey Reports, Parts I through VI, working papers and miscellaneous material by various geologists.

230. Olsen, J. C. Feldspar and Associated Pegmatite Minerals in New Hampshire, New Hampshire Mineral Resources Survey: Part XIV, U.S. Geology Survey, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1950.

This report gives an analysis of the property and uses of feldspar, its production, mining and milling methods, sources, including an aerial distribution of New Hampshire pegmatite-feldspar mineral deposits, and an outlook for feldspar production in New Hampshire. It also provides a bibliography and a list of known pegmatite mines and prospects in New Hampshire on maps.

231. Stewart, Glenn W. Lightweight Aggregate Raw Materials in New Hampshire, A Preliminary Report, New Hampshire Mineral Resources Survey:

Part XVII, New Hampshire State Planning and Development Commission, Concord, New Hampshire, 1959.

The purpose of this investigation of certain rocks and clays in New Hampshire was to find possible sources of raw materials for lightweight aggregate. It was noted that cinders are becoming more and more difficult to find due to the conversion of industrial boilers and furnaces to powdered coal or oil and it was therefore necessary to find other raw materials for the concrete block industries. One of these would be lightweight aggregates which are a substitute for cinders and in many ways superior to cinders. The report goes on to describe different properties descriptions and characteristics of various types of lightweight aggregates, and gives recommendations for further investigation and possible production in New Hampshire. Production in New England is listed; only one plant at that time, the Plasticrete Corporation at North Haven, Connecticut, was producing lightweight aggregate in New England. Some estimates of demand for lightweight aggregate in New England were given. Geologic distribution and description was noted in this report.

232. White, George W., with analyses by Gordon P. Percival. Peat Deposits, Preliminary Report, New Hampshire Mineral Resources Survey: Part III, New Hampshire State Planning and Development Commission, 1941.

This report lists types of peat found in New Hampshire: moss peak, reed or sedge peat and woody peat. It mentions that the most important New England production of peat was from Washington County in Maine at the time of the report. Forty-two peat bogs were examined in New Hampshire and information obtained on about 10 others. There were several deposits that were listed as being worthy of serious consideration as potential producers of fairly large scale at that time. The most promising deposits examined at that date occurred in the southeastern part of the state, mostly in Rockingham and Strafford Counties.

C. Mineral Development and Planning

233. Bridgeman, Robert W. New Hampshire Mineral Potential - What Can The State Do About It?, Prepared for the New Hampshire State Planning and Development Commission under the Small Business Administration Management Research Grant Program, Small Business Management Research Reports, New Hampshire State Planning and Development Commission, Concord, New Hampshire, May, 1961.

This study examines in some detail the mineral potential of New Hampshire. An effort is made to justify an improvement in the business atmosphere for mining. Recommendations are made for New Hampshire to follow in order to stimulate exploration and production.

234. Ferland, Vianney. An Economic Development of the Asbestos Industry in Vermont, M. S. Thesis, University of Vermont, Department of Commerce and Economics, 1953.

A study of the asbestos industry in Vermont and a consideration of potential expansion in view of increasing demand.

235. Kirshen, Himy Benjamin. Low Grade Manganese Ore in Maine - A Summary, University of Maine, Department of Business, Economics and Sociology, 1957 (available from Bangor and Arustic Railroad Company).

This study investigates the reasons why Maine manganese is not used and if there are technical processes for extracting manganese from low-grade ore. An evaluation of these processes in terms of commercial feasibility is also included.

236. Mineral Resources Committee. Mineral Resources in the Lakes Region of New Hampshire, Report, Lakes Region Survey, Concord, New Hampshire, May, 1945.

This report gives a resume of the resources in that region and recommendations for development and use.

237. New England Council. The Economic State of New England: 4. Minerals in New England, Report of the Committee of New England of the National Planning Association, Boston, Massachusetts, 1954.

This report describes the role of minerals in the New England economy; transportation and New England's mineral use; the mineral production of New England, including five different kinds of stone production, sand and gravel, asbestos, copper, talc, soapstone, pegmatite products, peat, clay, graphite, and other minerals. In addition the report describes the nation's mineral situation that existed at that time and New England in relation to it. Manganese deposits in Maine and other potential minerals for development are described and evaluated. The report takes into account foreign sources of minerals, including the development of Canadian and Latin American minerals. Imports of titanium and iron ore are described. The report concludes that the region's indiginous minerals contribute only a small amount to the employment and income of the people of New England; and that the extent to which minerals can make a further direct contribution is small. The report goes on to conclude that some of the region's minerals and the discovery of new deposits may have greater significance to the nation as a whole from the point of national security than they do to the New England economy. The manufacturing industries of the region are described as tremendously dependent on minerals brought in from outside New England. The dependence is absolute for mineral fuels, iron and steel, and many other important raw materials and products. The dependence on external sources is far more important to the region than their discovery or development within the six state area, particularly where the local deposits are of low-grade quality. It is suggested that the New England region should work toward a greater integration of its manufacturing structure with current development of the mineral resources of eastern Canada. In addition to the eventual possibilities of obtaining Labrador iron ore, the Committee felt that Canadian titanium offers important future prospects.

238. Rand, John R. Maine Pegmatite Mines and Prospects and Associated Minerals, State Geologist, Maine Geological Survey, Minerals, Resources Index No. 1, Department of Industry and Commerce, Augusta, Maine, March 1, 1957.

This publication was designed to provide basic information on the locations of mineral occurrences in Maine that were thought to be of possible commercial importance or popular interest. There is a compilation of some 184 pegmatite mines and prospects, their locations, associated minerals and other similar data. The report points out that pegmatites are of great value economically, in that up to that time over one million tons of potash feldspar had been shipped from the pegmatites of Maine for use in ceramic products, pottery, abraisives, and cleaning compounds. The report speculates that with a development of efficient mining methods and mineral concentration techniques, Maine pegmatites have become and will become even more a valuable source of low-cost feldspar that should enjoy a profitable position in national markets. The report also contains a selective bibliography on pegmatite investigations, geology of the pegmatites and associated rocks, economic geology of the pegmatites in Topsham, rather specific materials for other areas in Maine, and Maine mines and mineral locations.

239. Shaw, Donald H. A Survey of the Potential of Industrial Mineral Production in the State of Maine, Special Mineral Economics Report No. 1, Maine Department of Economic Development, Maine Geological Survey, October, 1959.

Lists present production and reserves of industrial minerals in the state. Includes a survey of 162 respondent business organizations in Maine, New Hampshire and Massachusetts. Transportation costs for industrial minerals from several supply points to the important market centers are presented.

240. Werner, A. B. T. The New England Beryl Mining Industry, Research Report No. 5, 1959, Federal Reserve Bank of Boston.

This report discusses the nature of the beryl mining industry and the possibility of establishing an integrated beryl mining and milling operation in New England.

V. Agriculture and Land Use

A. The Land Base and Land Use Planning

241. Black, John D., George W. Wescott, and others. Rural Planning of One County - Worcester County, Massachusetts, Harvard University Press, 1959.

This is a report of a land use planning project in Worcester County, Massachusetts. The study presents different planning procedures, treating farms as individual operating units. The theory and philosophy of planning is related to planning in Worcester County, with special emphasis on the process as a democratic procedure. Public agencies and organizations concerned with rural planning are listed. The study describes the structure and functioning of a potential nation-wide program of rural planning using the county as a key unit.

242. Black, John D. Farm and Other Operating Unit Land Use Planning, Seminar in Land Use and Conservation of Harvard University, April 1955.

This study reports basic principles and concepts of the planning process, policy making, land use planning, and conservation. The various governmental units and their functions in planning are enumerated. A section is devoted to planning of farm operating units, and other operating units. A final section deals with unified planning.

243. Connecticut Development Commission. Use of Land - A Report on the Connecticut Land Use Project, Technical Report 121, November 1962.

This study summarizes existing land use in the State of Connecticut and in individual planning regions. The study included preparation of base maps in the area.

244. Connecticut Development Commission. Viewpoints on Planning and Zoning, Proceedings of a Meeting sponsored by the Research and Planning Division of the State of Connecticut Development Commission, 1947.

This report covers a number of topics concerned with development of a region or state. Zoning, industrial development, highways, shopping and business centers, legal aspects of zoning and community action programs on a regional basis are among the topics covered.

245. Cooperative Extension Service, University of New Hampshire. Rural Areas Development Workshop, August 16 to 17, 1962, Durham, New Hampshire.

This set of papers presented at the Rural Areas Development Workshop is concerned with problems and requirements in rural areas development relative to land use.

246. Department of Resources & Economic Development. Beaver Brook, Keene, New Hampshire, 1962.

Recommendations for utilization of the proposed Beaver Brook Flood Control Project in Keene, New Hampshire. This report incorporates a recommended land use plan for the area.

247. George, A. Ernest. Rural Zoning - Help or Headache to New England Agriculture, Extension Bul. No. 156, Cooperative Extension Service, University of New Hampshire, Durham, New Hampshire.

This bulletin deals with the pros and cons of rural zoning, some of the factors to be considered and implications of zoning to residents of the area.

248. Graduate School of Geography. Land Use and Resource Study of Southern New England, Clark University, 1951-1952, L. C.

This study was to evaluate on a geographic basis, what the most efficient land use (agricultural, industrial, and commercial) would be for New England.

249. Harvard University. Rural Land Use Economy of New England, Committee on Research in the Social Sciences, Boston, Massachusetts, Dec. 1948.

This study discussed the economics of the different forms of rural land use in New England--agricultural, forest, and recreational.

250. Jeffrey, Arthur D., et. al. Present Use and Economic Classification of Non-Urban Land in Rhode Island, Dept. of Agr. Econ., University of Rhode Island and the Rhode Island Development Council, Planning Division, Publication No. 4, Jan. 1963, L. A.

This study analyzes all land in Rhode Island that has not been developed for commercial, manufacturing, residential or recreational use and is not held by the U. S. government for present land use and makes an economic classification of non-urban land based on future income expectancies. The study raises several problems that must be considered in planning for the areas' future development. Detailed maps on land use and economic classification are included.

251. LaFleur, Albert. The Extent and Character of Desirable Adjustment in Rural Land Use in New Hampshire and Vermont and the Most Effective Means of Obtaining such Adjustment, 1935.

This is an outline of procedure of determining the extent and character of desirable adjustments in rural land use.

252. Nason, Wayne C. Rural Planning: The Village, USDA Farmers' Bul. No. 1441, March 1925, Washington, D. C., OP.

This report indicates what has been done in the way of planning in numerous villages in New England. This bulletin attempts to answer questions of planning in terms of what has been done by villages, as well as to indicate the importance of such planning and the facility with which results can be obtained.

253. Nason, Wayne C. Rural Planning: The Social Aspects, USDA Farmers' Bul. No. 1325, May 1923, Washington, D. C., OP.

This bulletin gives several examples of communities in New England among others where planning for scenic and beautiful surroundings in addition to planning for better farming was accomplished.

254. New England Regional Planning Commission. From the Ground Up, Natural Resources Committee, March 1939.

The intent of the publication is to awaken the public to the need for planning in urban and rural land use. There are many photographs giving examples of good and poor planning.

255. New Hampshire Conservation Needs Committee. New Hampshire Soil and Water - Conservation Needs Inventory and a Study of Land Use, June 1961.

This study enumerates land use in the state at present and projections in land use for 1975. Also treated are needs for conservation of the land resource in the future.

256. New Hampshire State Planning Project. Land, Water and Recreation, Report No. 11, Land Surveying in New Hampshire, Concord, New Hampshire, November 1965.

The purpose of this publication was to record past and present land surveying information in order to help present and future land surveyors to improve the land records within the State of New Hampshire. The report deals with public land, designated land use, private land, and control.

257. New Hampshire State Planning and Development Commission. Land Use Plan, Hopkinton-Everett Reservoir, 1962.

This report is a comprehensive study of the flood control project. It includes an analysis of existing land use, a plan for land use after construction of the project, including agricultural, fish and game management, forestry, outdoor recreation, and access roads.

258. Perry, Robert Folsom, Jr. Land Utilization in Sullivan County, New Hampshire, A Critique and Evaluation of the County's Rural Land Resources, a doctoral dissertation, Clark University, Dept. of Geography, June 1957, L. C.

This study examines the land-use patterns in rural areas of Sullivan County, New Hampshire. A presentation is made of the formal use pattern, its origin and development and possible functional uses of the land.

259. Riesman, David and Ruth Sherburne. Public Land Ownership in Rural Areas of Massachusetts, Exp. Sta. Bul. No. 489, Dept. of Agr. Econ., University of Massachusetts, 1956.

A study of public land ownership in rural areas of Massachusetts, including the extent, use, tax exemption, and public land ownership in relation to: 1) type of land, 2) population, and 3) woodlands, 4) roads, and 5) taxation.

260. Rhode Island Development Council. Land Use Controls in Rhode Island, publication No. 6, March, 1963.

This is a study of zoning ordinances and land use practices in the State of Rhode Island.

261. Rhode Island Development Council. Non-Urban Land - Present Use in Economic Classification, Planning Division, State Planning Section, Publication No. 4, Sept. 1962.

This study reports the results of a survey of the state made in 1960. Land use classes for non-urban land in the state is classified by uses by counties and economic evaluation is made in terms of these land uses. A final section deals with future land policy for Rhode Island's land resources.

262. Ritchie, Alexander, Jr., and C. L. W. Swanson. Soils and Land Use, Hartford County, Connecticut--An Area of Specialized Agriculture and Rapid Suburbanization, Bul. No. 606, the Connecticut Agr. Exp. Sta., New Haven, Conn., Oct. 1957.

This study includes an inventory of the soil types in the area under consideration and the use to which the land is presently being used. The authors bring up the problems of suburbanization as related to agricultural land use. Perhaps the only recommendation made is that some sort of zoning be put into effect.

263. University of New Hampshire. The Soil Bank Program in Coos County, Agr. Exp. Sta., Durham, New Hampshire, 1960, June, 51 pages.

Coos County agriculture since 1920, giving changes in the employment of farm resources, effects of the Soil Bank program on the economy, income flow in the local economy, estimates of non-participating farmers, etc.

264. Vermont Resources Research Center. Trends in Land Use, 1963-1964, Report V, Agr. Exp. Sta., University of Vermont, Burlington, Vermont, 1964.

This report contains a historical analysis of developments in land use in the State of Vermont during the period specified. It includes agricultural land use, recreational land use and forestry land use. The effect of urbanization is analyzed to some extent.

265. Vermont Resources Research Center. Vermont Land Classes, Report VI, Agr. Exp. Sta., University of Vermont, Burlington, Vermont, 1964.

This publication contains a definition of land classes for each county in the state and for the total state.

266. Vermont Resources Research Center. Projected Land Use for Agriculture, Report VIII, Agr., Exp. Sta., University of Vermont, Burlington, Vermont, 1964.

This report projects trends in the agricultural industry in Vermont and on the basis of these trends estimates land use requirements by agriculture in 1975.

267. Vermont Resources Research Center. The Rural Land Market in Vermont, Report IX, Agr. Exp. Sta., University of Vermont, Burlington, Vermont.

This report gives an analysis of land ownership and land values in Vermont by counties and for the state. Emphasis is on agricultural land use, but attention is also given to recreational uses and urbanization forces.

268. Woodworth, H. C., Max F. Abel, and John C. Homes. Land Utilization in New Hampshire - Part I - Problems in the Back Highland Areas of Southern Grafton County, Bul. 298, June 1937, New Hampshire Agr. Exp. Sta., University of New Hampshire, Durham, New Hampshire.

This publication represents a pioneering study of land utilization in the northern New England area. Included is an inventory of the resources and utilization of land in the rural area of northern New Hampshire. An important portion of the study deals with planning and changes needed to facilitate the economic growth of the area.

B. Agricultural Adjustments

269. Adams, Thurston. Adjustments in a Changing Agriculture in New England, New England Agricultural Economics Council, Proceedings, June 1959, University of Massachusetts.

270. Brinser, Ayers. Agricultural Adjustment in New England, New England Agricultural Economics Council Proceedings, University of Massachusetts, June 1959.

271. Department of Agricultural Economics & Rural Sociology. Agricultural Planning Data for the Northeastern United States, A. E. & R.S. 51, Agr. Exp. Sta., the Pennsylvania State University, University Park, Pennsylvania in cooperation with the Farm Production Economics Division, Economic Research Service, USDA, July 1965.

This comprehensive report includes data concerning the form of input coefficients used in agriculture in the Northeast. The material is presented in five major sections: labor and machinery, yields and responses, prices of inputs and products, buildings, and budgets. Coefficients are presented in two levels; average and upper 25%. The data are particularly applicable to commercial dairy farming. Twenty areas are defined within the total region and the coefficients are presented for each of these areas.

272. Federal Reserve Bank of Boston. Farms in the Shade of Cities: Middlesex County Agriculture, in the Monthly Review, Research and Statistics Department, Feb. 1955.

A description of the intensive agriculture of Middlesex County. Aspects of interregional competition and competition for land from factories and housing developments are considered.

273. Fellows, Irving F. Developments and Future of New England Agriculture, New England Agricultural Economics Council Proceedings, University of Maine, June 1958.

274. Foster, John H. Agricultural Change in the Connecticut Valley Region of Massachusetts, University of Massachusetts, College of Agriculture, Cooperative Extension Service, 1958.

This study describes changes in agriculture in the 22 towns of the Connecticut Valley agricultural region with a historical presentation emphasizing adjustments since World War II. A statement of major economic factors associated with these changes is included.

275. Halcrow, Harold G. Public Policy for Agriculture: Problems and Issues in Connecticut, University of Connecticut, Agr. Ext. Ser., 1953.

A discussion of agriculture in the state and in the nation. Policies and programs of federal and state agencies directed toward economic stabilization are discussed.

276. Lee, Duane. Urban Growth and Agricultural Change, Paper, the 1964 Proceedings, New England Agricultural Economics Council, University of Massachusetts.

277. National Committee on Agricultural Policy, the Farm Foundation, and the Center for Agricultural and Economic Adjustment. Adjustments in Agriculture--A National Base Book, Iowa State University, Iowa State University Press, Ames, Iowa, 1961.

This book is a collection of papers dealing with adjustments which are needed in agriculture for the future. The subject matter deals with the aggregate problems of United States agriculture.

278. Committee of New England. The Economic State of New England: 3. Agriculture in New England, Report of the National Planning Association, Boston, Massachusetts, 1954.

This report deals with the nature of New England's agriculture, including the composition of New England farming, the size of farms, the New England proportion of national production, and the natural resource aspects regarding New England agriculture. In addition, it lists and analyzes New England's principal agricultural products, including dairy and poultry, potatoes, tobacco, and woodlot products. Some of the agricultural problems dealt with and analyzed in this report for New England are mechanization and productivity, agricultural labor force, marketing methods, transfers of ownership, credit, real estate taxation, federal price policies and other federal agricultural policies. The report concludes that New England is a deficit area for all but a few types of agricultural products. Most of New England's farm products are consumed within the region. The report further concludes that because of the composition of agriculture in the region, sustained urban prosperity is more important to the well being of the New England rural economy than the high level that existed at that time of price supports. It suggests that supports at a lower level to act as disaster insurance would be desirable.

279. Niederfrank, E. J. People and Agricultural Resource Adjustments, USDA, Federal Extension Service, AEP-86 (6/58), L. C.

This paper, one of a series of staff seminar papers, is indicated as being for discussion purposes only. The paper presents a rather detailed analysis of the human factor in agricultural resource adjustment. Changes which have occurred in the past are illustrated and projections of trends are made to the future and implications drawn from these data.

280. Rorholm, Niels. Agricultural Adjustment in Southern New England, New England Agricultural Economics Council Proceedings, June 1959, University of Massachusetts.

281. United States Department of Agriculture. A 50 Year Look Ahead at United States Agriculture, Washington, D. C., June 1959.

This publication projects U. S. agricultural production to the year 2010. Requirements for the various types of farm products on the basis of population and other factors are computed. Crop yields and acreage requirements are projected on the basis of estimated demands. Changes in land use are included and an evaluation of available land and water resources are also included.

282. United States Department of Agriculture. Farming Adjustments in the Northeast to Meet Defense and Post-Defense Needs, by the Division of Farm Management and Costs, Bureau of Agricultural Economics, November 1941.

This publication was written in a time of wartime need with requirements for increased production in almost all agricultural sectors. The publication points out these needs and methods whereby increased production could be achieved.

283. University of Massachusetts. Farm Planning Workshop Report - The Northeastern States, Amherst, Massachusetts, September 28, October 2, 1953.

This publication is a compendium of papers presented at a workshop concerned with farm planning. The emphasis of the papers is on adjustments needed to increase efficiency of individual farm operations.

C. Competitive Position

284. Brown, A. A. Freight Rates on Feed - Central Territory Origins to New England and the Middle Atlantic States, Agr. Exp. Sta., University of Massachusetts, June 1959.

This study primarily concerns the rail rate structure on feeds from the middle west or customary origins to eastern destinations. The most significant portion of the study deals with the implications relative to the competitive position of the poultry producing areas in the east.

285. Christensen, R. P., and R. L. Mighell. Interregional Competition in the Production of Chickens and Eggs, Technical Bul. No. 1031, USDA, Washington, D. C., 1951.

The publication includes geographic distribution of production at the time of the study throughout the United States. Demand for poultry and egg products is taken into account through a description of the geographic structure of demand. Product prices and input costs are considered. The researchers found that the labor factor seemed to be the most controlling influence on competitive production of poultry and eggs. There are 2 aspects to this factor: one being the availability of labor and a second being the availability of alternative uses for the labor. New England is cited as one example of an area that has experienced rapid rates of growth in the poultry industry.

286. Gartner, Joseph, and J. R. Bowring. Competition for New England Apples on U. S. Markets; I - Market Prospects for Growers, Bul. 436, Agr. Exp. Sta., University of New Hampshire, April 1957.

This study deals with economic problems of the fruit and vegetable industry of New Hampshire and of New England. It investigates the competitive position of the New England apple industry and the market potential for growers. The study concludes that New England growers have had an improved competitive position relative to growers in other regions.

287. Gartner, Joseph. The Competitive Position of the New England Apple Industry, M. S. Thesis, University of New Hampshire, Dept. of Agr. Econ., August 1956, L. C.

A study of the apple industry in the United States and a description of apple-producing regions and their relation to Boston and New York City markets. Concludes that New England growers have improved competitive position relative to other regions and that this competitive advantage will continue.

288. Judge, G. G. Competitive Position of the Connecticut Poultry Industry: I - Economic Interpretations of Regional competition, Bul. 309, Feb. 1954, Storrs Agr. Exp. Sta. University of Connecticut, Storrs, Conn.

This bulletin presents an excellent description of the theory of interregional competition. Some examples from research work previously conducted at Connecticut are shown to illustrate points.

289. Maine Bulletin. Competition Among Areas in Supplying Broilers to the New York Market, Bul. 582, 1959. Not available for review.

290. Martin, James E. The Effects of Changes in Transportation Rates on the Del Marva Poultry Industry, Department of Agricultural Economics,

University of Maryland, College Park, Maryland, Mis. Pub. No. 515, May 1964.

This interregional competition study uses linear programming techniques to evaluate a large number of economic forces acting upon the broiler industry. The major determining factor appeared to be transfer costs on movements of feed grains into the Northeast, Del Marva, and southeastern regions. Del Marva appeared to be in the most advantageous position of all broiler producing areas in the Northeast to benefit from a reduction in transportation rates on feed grain.

291. Reed, Frank D. The Economic Position of the Maine Broiler Industry--A Situation Report (for Administrative Use,) Cooperative Extension Service, University of Maine, Orono, Maine. L. C.

This study analyzes the growth of the broiler industry in Maine and compares it with other major broiler producing areas. An analysis is made of the various costs involved in broiler production. An evaluation is made of the competitive position of each of the broiler areas on the basis of delivery to New York or Boston markets. A conclusion is that Maine's position depends heavily upon the maintenance of a premium price of Maine broilers in these markets relative to poultry from other areas. Of significance also is the factor of grain transportation into New England relative to other producing areas.

292. Rice, S. T. Hatching Egg Procurement and Interregional Competition in the Commercial Hatching Egg Industry, Bul. No. 293, Jan. 1952, University of Delaware, Agr. Exp. Sta., Newark, Delaware.

One of the significant aspects of this publication was the evaluation of comparative economic advantage by regions in the production and marketing of broiler hatching eggs. Production costs and production efficiency in different regions of the Northeast were compared. At the time of this study it seemed apparent that New England had some advantage in production efficiency relative to other areas in the Northeast, however, marketing costs involved in producing New England hatching eggs were somewhat higher than those for the Del Marva peninsula.

293. Saunders, Richard. The Impact of the Broiler Industry on Maine's Economy, Mimeograph Report No. 75, Dept. of Agr. Econ., Maine Agr. Exp. Sta., Orono, Maine, June 1958.

This study enumerates in dollar amounts the economic contribution of the Maine broiler industry to the economy of Maine in 1957.

294. Nichols, T. E. Lower Freight Rates--Their Effect on the Competitive Position of the Broiler Industry in the Southeast, Del Marva, and New

England, Staff Contribution No. 64--I, Department of Agricultural Economics, North Carolina State, Raleigh, North Carolina, July, 1964.

An analysis of the effects upon the competitive position of 3 regions of the eastern United States due to a change in grain freight rates. The study concludes that the new freight rates on grain shipped into New England relative to other areas in 1964 would result in a greater competitive advantage for the Southeast and the Del Marva areas relative to New England.

295. University of Maryland. Competitive Positions of Major Broiler Areas, No. I, A report by the staff, College of Agriculture, University of Maryland, May 1959.

This report is a compilation of data concerning production prices and costs in nine major broiler producing areas including Maine. No aggregate weighing of advantage was attempted.

D. Agricultural and Economic Growth

296. Abell, Max F. and Harry C. Woodworth. A Proposed Project for the Purchase of Low Producing Farms in Definite Back Town Areas in Western New Hampshire, University of New Hampshire, Durham, New Hampshire, 1934, 28 pages.

The diversion of the lands to forest and recreational uses, and the relocation of the farm families where opportunities for better incomes and more adequate social life are possible.

297. Coos County, New Hampshire RAD Committee. Phase I of the Comprehensive Plan - Opportunities for Agriculture, Coos County, New Hampshire, September 1965. L. C.

This report includes an overview of agriculture in Coos County, projections of agricultural development in the County, some representative farm models, the income contribution of agriculture in the county, and action programs for agriculture.

298. Donovan, William J. An Analysis of Agriculture in the Economic Base of the New England Region--With Projections, Resource Development Economics Division, ERS, USDA, June 1964. L. C.

This study was prepared to support comprehensive planning for the Connecticut River Basin by providing an economic profile and analysis of the region's present agricultural resources and production. A concluding section includes trends and projections relative to the agricultural economy. The report contains a detailed description of the agricultural economy and points out limitations and advantages relative to other regions.

Population and incomes for the region were projected in order to derive domestic demand in the region for farm products to the year 2020. Per capita consumption trends for selected agricultural products were developed, aggregate demands computed and index numbers of production requirements by commodity groups estimated. The report concludes with projections of primary agricultural production by commodities for the New England region to the year 2020.

299. Federal Reserve Bank of Boston. Aroostook's "Sweet" Potato, in the New England Business Review, March 1964, Research and Statistics Department.

This article reviews the economy of Aroostook County, Maine and discusses its dependency on the potato industry and the possibility of developing a sugarbeet industry in the area. The report discusses the domestic sugar supply situation, nationally and in New England, and the steps that have been taken to obtain a sugarbeet allotment for Maine and the effect that this would have on the state.

300. Harrington, D. H. Agricultural Trends and Projections by Sub-State Economic Areas for the New England Region, Resource Development Economics Division, ERS, USDA, November, 1964. L. C.

This is the third report in a series dealing with the agricultural base in the New England region. Previous reports analyzed trends and made projections for the region and for states within the region. This report deals with trends and projections for sub-state areas.

Shifts in the concentration of production within each state are analyzed and projections to the year 2020 made for each of the sub-state areas.

301. Pullen, Winston E., et. al. A Report of the Farm Production Feasibility of Sugarbeets in Aroostook County, Maine, University of Maine Agricultural Experiment Station, Orono, Maine, November 1965.

Two parts: 1) The agronomic suitability of Aroostook County for sugarbeet production.
2) Economic need and profitability of sugarbeet production in Aroostook County.

302. Sandretto, Carmen and D. H. Harrington. Agricultural Trends and Projections by States for the New England Region, Resources Development Economics Division, ERS, USDA, Revised, Dec. 1, 1964. L. C.

This report is the second in a series concerned with agricultural development in the New England area. This report concentrates on adjustments and projections in individual states of the region. Each state is analyzed in terms of production trends and specialization presently taking place in the region.

303. University of Massachusetts. Potential Production Capacity for Agriculture in Massachusetts, Department of Agricultural Economics and Farm Management, November 1951.

This study was an effort to predict the potential agricultural production capacity for the year 1955.

304. University of New Hampshire. Agriculture in the New Hampshire Economy, Department of Resource Economics, estimated completion, July 1966.

This study will analyze the economic base of New Hampshire and consider its relationship to the New England region as a basis for predicting the future development of the rural sector of the New Hampshire economy. The dependence of agriculture and the rural sector on the rest of the state's economy and the service these areas provide the urban areas will be examined. The structure and composition of the state's economy will be determined in part by shift analysis; the dependence of the state on the rest of the region will be assessed with location quotients; and an assessment of alternative development measures will be attempted by a sector analysis.

305. University of New Hampshire Agricultural Experiment Station. Agricultural Industries of New Hampshire, Resource Economics Research Mimeograph No. 33, Durham, New Hampshire, October 1964.

This comprehensive report contains a detailed analysis of New Hampshire's resources, both natural and human. The report stresses the characteristics of the New Hampshire agricultural industries, and provides a good deal of descriptive information concerning these industries and changes which have taken place over the recent years. The concluding section of the publication presents a challenge for the '60's, which points out needed adjustments for the agricultural industry of New Hampshire.

306. Van Alsberg, E. J. Vermont Industrial and Agricultural Chemergic Survey, Vermont Development Commission, Montpelier, Vermont.

A survey of the possibilities of new products, raw materials, new processes, etc. that Vermont has to offer to industry and agriculture.

307. Vermont Resources Research Center, Trends in Vermont Agriculture, Report VII, Agr. Exp. Sta., University of Vermont, Burlington, Vermont, 1964.

This report describes the present state of the agricultural industry in Vermont, presents data to illustrate trends in the state, and comparative data with other New England states. A concluding section presents future directions of Vermont agriculture based on the trends developed in previous sections.

308. Washington County Rural Development Program Committees. Resources of Washington County, Maine, Opportunities and Suggestions for Their Development, prepared by the Committee, July 1958. L. C.

This report inventories the Washington County area with regard to physical and economic aspects and deals with the potentials for rural development in poultry, sheep, blueberries, forestry, recreation and education.

309. Whittemore, Fred W. New Hampshire Agriculture: Selected Data on Trends, Position of Agriculture in the Economy and Interpretations, New Hampshire State Planning and Development Commission, August 24, 1953, 14 pages.

VI. Forestry Resources and Development

A. The Forest Resource Base

310. Baldwin, Henry I. and Edgar L. Heermance. Wooden Dollars, Federal Reserve Bank of Boston, Research and Statistics Department, March, 1949.

This study reported on the forest resources of New England, their condition in 1949, their economic significance and potentialities.

311. Conference of New England Forestry Officials. A Forestry Program for New England, New England Council, Boston, Massachusetts, January 1946, 7 pages.

Statistics on employment and payrolls in woodworking industries, forest land ownership in New England states.

312. Ferguson, Roland H. and Victor S. Jensen. The Timber Resources of New Hampshire, Resource Report NE-1, USDA, Forest Service, Northeast Forest Experiment Station, January 1964.

This report summarizes findings of a re-survey of the timber resources of New Hampshire, updating the first comprehensive report on the state's timber resources published in 1954. It discusses the changes that have taken place in the intervening period; the timber outlook for the state and the demands for timber products; and describes current forest land area and timber volumes.

313. Ferguson, Roland H. and John R. McGuire. The Timber Resources of Rhode Island, Northeastern Forest Experiment Station, USDA, 1957.

This study contains text and statistical data concerning current use, supply, and the condition of Rhode Island's timber resources.

314. Governors Forest Policy Committee. A Forest Policy for New Hampshire; A Report to John W. King, New Hampshire State Planning Project, 1964, Concord, April 1965, 46 pages. (Appendices 1-9).

315. Governors Forest Policy Committee. Forest Policy for New Hampshire, Concord, New Hampshire, December 1952, 24 pages and appendices.

Forest research, education and technical assistance, means of creating conditions favorable for forestry and control of cutting and utilization practices.

316. Griswold, Norman B. and Roland H. Ferguson. The Timber Resources of Connecticut, Northeastern Forest Experiment Station, USDA, 1957.

This study contains text and statistical data concerning current use, supply, and the condition of Connecticut's timber resource.

317. McQuilkin, W. E. Look to the Hardwoods, Station Paper No. 91, Northeastern Forest Experiment Station, USDA, 1957.

A description of the history, characteristics, and abundance of hardwoods in the Northeast indicates areas where further study is needed.

318. Committee of the New England Council. The Economic State of New England: No. 1 The Forests of New England, National Planning Association, Boston, Massachusetts, 1953.

This paper deals with the status of New England's forests, including growth, types of forest drain, and net growth or drain in the New England forest. The study suggests a program for the progressive rehabilitation of New England forest land, improving forest management, and deals with forest taxation, fire insurance, credit, and the utilization of residues and surplus wood. The conclusions include: the timber yield of New England's forests at that time under those management practices was less than the region's consumption and the yield was only a fraction of what the 31 million of acres of commercial timberland in New England could produce. The study went on to suggest some 12 points aimed at increasing the productivity of the forests and their contribution to the New England economy; and actions that should be taken by private and public organizations. In addition the report gives a list of some 14 selected references on forest problems in New England.

319. Northeastern Forest Experiment Station. Forest Taxation in Hancock County, Maine, Philadelphia, Pennsylvania, July 1947.

The study was set up to indicate whether tax assessments of forest land in the organized towns of Maine could be made more equitable.

320. Northeastern Forest Experiment Station. Highlights of Forest Reappraisal Results in the Northeast Included in the 1946 Annual Report of the Northeastern Forest Experiment Station, Philadelphia, Pennsylvania, December 1946.

This study reported on the condition of forest lands in the Northeast at that time, the ownership of commercial forests, the timber supply, the timber drain from Northeastern forests in 1944, timber growth in 1946, the lumber production deficit, and wood waste in the Northeast, and lumber production in the Northeast by states from 1869 through 1946.

321. Northeastern Forest Experiment Station. Timber Resources of New England and New York with Special Reference to Pulpwood Supplies, Philadelphia, Pennsylvania, 1946.

This report indicated the number of pulp mills, the timber supply situation, the forest products cut/deteriorated, and indicated what would have to be done in order to increase timber supplies for pulp mills.

322. Northeastern Wood Utilization Council. Forest Assets of New England, New Haven, Connecticut, December 1947.

This study included the area of woodland in New England, growth and drainage characteristics, wood using industries and possibilities, and of potentials under managed forestry practices.

323. U. S. Forest Service Resource Report NE-1. The Timber Resources of New Hampshire, 1963.

This report contains a rather detailed inventory of the forest resources in New Hampshire and shows trends which are developing in growth and utilization of the forest resource.

324. United States Department of Agriculture. The Forest Resources of New Hampshire, U. S. Government Printing Office, Washington, D. C., 1954, 39 pages.

This report is concerned with the forest economy, industries, resource condition, and timber budget.

B. Forest Resource Management

325. Barraclough, Solan L. and Ernest M. Gould, Jr. Economic Analysis of Farm Forest Operating Units, Harvard Forest Bulletin No. 26, Petersham, Massachusetts, 1955.

This study deals with a complete economic analysis, including budgeting, of nine woodland dairy farms in the agricultural areas of New England. The authors also discuss input-output relationships for forest production, management yield data, and performance rates in New England forest operations.

326. Barraclough, Solan, Forest Land Ownership in New England--with Special Reference to Forest Holdings of Less than 5,000 Acres, doctoral thesis, Harvard University, Department of Economics, June 1949.

This thesis examines the extent and average size of small forest holdings, the occupations, ages, and places of residence of the owners, how these owners came to obtain their forest property, their attitude toward forest property ownership, and the question of whether it was a financial asset or liability and other aspects of ownership bearing on the prospects of improvement in forestry practices on small forest holdings.

327. Donnelly, Robert H. Decision-Making in Growing and Harvesting Pulpwood, Doctoral thesis, Yale University, School of Forestry, September 1963.

This study applies linear programming techniques to problems of decision-making in woodland management for the pulp and paper companies in northern New England. The study deals with the problem of providing a given set of wood requirements to the mill with certain fixed and variable resources, including timberlands.

328. Federal Reserve Bank of Boston. The Right Key to Forest Products: Intelligent Management, Monthly Review, Boston, Massachusetts, September 1948.

This study indicates what needs to be done to bring a fuller realization of the economic potential of New England's forests and what will have to be undertaken to insure continuation of the present contribution of the forests to the region's economy.

329. Foster, Thomas S. The Forest Resources and Wood-Based Industries of Berkshire County, Massachusetts, Berkshire County Industrial Development Commission, University of Massachusetts, December 1961.

This study presents a history of land use and industrial development in the county. Emphasis is placed on the history of forest use and the timber resource study. The forests of the County are described by type, by condition, and by saw timber volume. The conclusions of the study deal with the need for proper forest management practices to insure continued yields into the future.

330. Gould, Ernest M., Jr., and William G. O'Regan. Simulation, A Step Toward Better Forest Planning, Harvard University, Harvard Forest, estimated date of completion 1964-65, AU (availability undetermined).

This study was undertaken to construct a simulation program for a computer to imitate a simple forest operating unit. The model uses one yield table, constant and variable price schedules, and allows for fires and hurricanes. The harvesting policy operates by area control and allows cut to be varied by age and price.

331. Northeastern Forest Experiment Station. Forest Survey of Hancock County, Maine, and the State of New Hampshire, Philadelphia, Pennsylvania, 1947-48.

This study covers the extent, location and condition of forest land and the present supply of timber and other forest products at that time. It gives the rate at which the supply at that time was being decreased through harvesting and destructive agents and the rate it was being increased through growth.

332. United States Forest Service, United States Department of Agriculture. Economic Aspects of Eastern White Pine Production in the Northeast, Northeastern Forest Experiment Station.

An analysis of the economic aspects of certain eastern white pine management problems in the northeastern United States. The objectives of the study were 1) to describe easter white pines, future markets, and the associated quality requirements and prices; 2) to evaluate costs of increasing quality and quantity of yields in white pine by specified management practices; 3) to develop criteria for field use which would assist foresters in evaluating profitability of management measures in a young white pine stand; and 4) to evaluate the economic implications of these results for public policy.

333. Wallace, Oliver P. Land, Water Recreation--Report Number 2, Forest Management for Better Living in New Hampshire, State Planning Project, State of New Hampshire, Concord, New Hampshire, June 1964.

The purpose of this study is to help clarify problems which face private and public owners of forests as demands increase for varied land uses. The report deals with the ownership of commercial forest land in New

Hampshire; New Hampshire's timber broken down into forest types; forest industries, forest management accomplishments; and present forest problems. Forest problems include taxation, inconsistencies, protection, stand improvement work, declining lumber markets, and industrial service needs.

C. Forest Development

334. Arthur D. Little, Inc. Opportunities to Increase Employment in Northern New Hampshire through Hardwood Utilization: Expansion of the Pulp and Paper Industry, Area Redevelopment Administration, Technical Assistance Project, U.S. Department of Commerce, July 1965.

This report begins with a description of the pulp and paper industry in New Hampshire, continues through with an analysis of the resources available to the pulp and paper industry, develops an economic analysis of the technology of pulp and paper production and a market potential analysis. A concluding section deals with opportunities for individual companies.

335. Berkshire County Industrial Development Commission. Tapping the Berkshire Billion, Opportunities for Wood-Based Enterprises in Berkshire County, Massachusetts, Pittsfield, Massachusetts, February 1963.

This is a pictorial and somewhat popularized account of wood-based enterprise opportunities in the above mentioned area.

336. Committee on Natural Resources of the New England Council. Focus on Micova: A New England Wood Industry Opportunity, 1965.

The report deals with an area surrounding the middle Connecticut River Valley. The report inventories the wood resources of the area and contributing economic factors such as power, labor, services and water.

337. Cronk, C. P. Forest Industries of New Hampshire and Their Trends of Development, 1936, 237 pages.

This gives trends in the lumber, woodworking, pulp and paper, and miscellaneous forest industries.

338. Duerr, William A. Technological Progress--Master Key to New England's Forestry Future, In Monthly Review, May 1953, Federal Reserve Bank of Boston.

The influence of technological advance and the need for adjustments in the forests and forest products industries for assurance of continued and increased benefit from the forest resources.

339. Graham, Paul H. and George W. Shaw. An Economic Analysis of the Potentials of the Hardwood Industry in Northern New Hampshire, Report to the Economic Development Administration Technical Assistance Project, U.S. Department of Commerce, prepared by the University of New Hampshire Agricultural Experiment Station, April 1966.

This study inventories the forest resources of the area. Characteristics of the existing wood industry are enumerated and availability of various services including labor, power, transportation, financing, taxes are included. The study analyzes in some detail the prospects for selected wood products. Plant sites and estimated profitabilities are included. A concluding section deals with implementation of the recommendations of the report.

340. Hampf, Frederick E. Production and Marketing of Charcoal in the Northeast, Northeastern Forest Experimental Station, U.S.D.A.

Reports a survey of nation-wide charcoal production during 1955 and 1956. The study provides basic information on the quantity produced, the uses, the quantity and type of wood used by species and species groups. Also describes general trends in charcoal production, methods and uses.

341. Harper, V. L. Timber Resources of New England and New York with Special References to Pulpwood Supplies, Northeastern Forest Experiment Station, U.S.D.A. 1947.

This study indicated that the heavy pressure of utilization on the forest reserves resulted in improved forest management, better protection, waste reduction, and use of hardwoods for necessary pulp supplies.

342. Northeastern Wood Utilization Council. Charcoal Market Wood Survey, 1949.

This study attempted to discover where charcoal could be sold if it were to be produced in New England. The study was undertaken by Industrial Development Reports, Boston, in cooperation with the Northeastern Wood Utilization Council.

343. Northeastern Wood Utilization Council. Location Studies for Pulp Mills in Southern New England, February 1948.

This study examines the general area characteristics in Southern New England and compared specific locations for their suitability for pulp mills.

344. Peck, H. Austen, assisted by George W. Burak and Merrill D. Bartlett. The Wood Products Industries of Maine--A Report to the Maine Depart-

ment of Economic Development, University of Maine, Department of Business and Economics, August 1957.

An economic survey of the wood industries of Maine with the exception of paper and pulp. Deals with the scope of these industries, determines their important problems, and formulates recommendations for the future.

345. R. S. Aries and Associates. Location Study of Potential Charcoal Plants in New England, January 1952.

This study discussed the amount of suitable wood and wood waste for charcoal manufacture plus other facilities such as water transportation and management.

346. Shepard, H. B. Hardwood Pulp--Its Manufacture and Use, with Special Reference to Southern New England, A Compilation and Study, New England Council, 1956.

A preliminary examination of the feasibility of basing new hardwood pulp manufacture on the southern New England wood resources. A comprehensive body of information assembled on the manufacture and use of hardwood pulp.

347. Stoddard, Charles H. and William P. House. Small Business in New Hampshire's Forestry and Forest Products Industry, prepared for the New Hampshire State Planning and Development Commission under the Small Business Administration Management Research Grant Program, Small Business Management Research Reports, New Hampshire State Planning and Development Commission, May 1961.

The research study analyzes the forest resources of the state and their improvements and cites some methods for accomplishing expansion and improvement.

348. Wallace, O. P. The Use of Lumber by New Hampshire's Wood-Using Industries, Agricultural Experiment Station Bulletin 474, University of New Hampshire, October 1962.

This report analyzes the use of lumber by various wood-using industries in New Hampshire by grade, species and source. Included is a description of the different types of wood-using firms and their operating practices. Some implication for the New Hampshire forestry industry can be drawn from the results of the study.

349. Woodbury, Raymond J. The Effect of Population upon Retail Lumber Sales in New Hampshire, M. A. Thesis, University of New Hampshire, Durham, New Hampshire, 1960, 25 pages.

TASK FORCE REPORT H

A Survey Of Economic Research On Ocean Resources In New England

NIELS RORHOLM

SECTION 1 EVALUATION

I. Introduction

New England's coastal waters yield products in the form of fish, shellfish and seaweeds and, potentially, sand, gravel and petroleum. These waters and their associated coastal features also yield services in their role as the base for the marine recreation industry. In a similar sense the ocean yields services as a base for marine transportation. That, however, will not be covered in this section.

The bibliography relating to New England's ocean resources is very uneven. In the area of fisheries there is no lack of titles; most of the work, however, is of a technical nature. Some of this gets very specific, as opposed to the economic studies which are rather general. One misses the tie-in between competently executed technical projects and economic research.

Economic research on other products of biological and geological origins does not exist. Other than in a general textbook sense, the technical coefficients have not yet been adequately developed or if they have, they are the property of private firms which have no particular incentive to publish them.

A great many reports have been issued concerning the use of coastal areas for marine recreation. So called economic studies abound; but they are little more than guess work or meaningless repetition of aggregate economic statistics. It is apparent that the professional backgrounds of the people who have done most of this work are design, land use, traffic analysis and general planning. Economic research which attempts to analyze relationships between recreational activities and the local economies is just now getting underway.

II. The Fishing Industry

As might be expected when an old industry seems to be in difficulty, a number of studies have been made of the New England Fishing Industry. It may be that the number of studies is exceeded even by the number of pages of testimony given before various committees and commissions on behalf of the industry.

In what follows, this reviewer has quoted extensively from some of the writings on the New England fishing industry. It is his feeling that these quotes provide the reader with a good picture of the problems of the fisheries, as they have been discerned by writers in the field.

In the first of the economic studies which have clear relevance to an understanding of problems of the fishermen of New England, White[1] gives an excellent overview of the history and the status (1950-52) of the industry. Thereafter he concentrates mostly on compensation problems and the relationship among buyers, owners and crews.

White classifies the problems of the New England fishing industry into four categories, namely, profit-sharing controversies between owners and crews, a decline in the population of important species of fish, marketing difficulties created by low consumption and relatively high distribution costs, and, finally, foreign competition.

White recommends:

> "Through collective bargaining the union might propose that the final arbiter on fish quality be an outside agent acceptable to both the dealers and the fishermen. He should be paid jointly by the parties and should be allowed to hire competent assistants if necessary. This move would help eliminate needless controversy. Secondly, the union might propose that each captain break down on a quality basis the quantities of each species of fish offered for sale in the opening market. It is ridiculous for all fish to be represented as first quality in the opening market, as at present. Almost always there will be some second grade fish in each catch, if for no other reason than that the earliest caught fish on each voyage may be nine to ten days old when landed. These earlier caught fish, moreover, will have been carried hundreds of miles in the vessel's hold under the weight of later hauls with consequent damage to quality."
>
> "Gloucester and New Bedford need definite machinery to settle matters which may be essentially moot after auctions take place. The ports require an objective, orderly process to insure a) that the dealer pay the proper price for the correct proportions of differently classified fish in each catch, e.g. small, medium and large, and b) that the dealer pay only for the correct weight."

Following these suggested solutions White discusses methods by which they may be brought about through "hard bargaining" between dealers and the Atlantic Fisherman's Union.

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[1] White, Donald J. "The New England Fishing Industry." Harvard University Press, Cambridge, Mass. 1954.

White further recommends:

A program of research

"The industry needs an institute to develop, collect, and disseminate knowledge applicable to both technical and economic problems. Technical inquiries might uncover and classify, for example, the merits of species which are now abandoned or underexploited. In turn, marketing research might discover both edible and industrial uses for which those species might be sold. Broadening of the industry's product base would be the highly profitable result. The key species might be relieved of some of the pressure of concentrated fishing efforts. The efficiency of fishing operations would be improved. In recent years as much as twice the amount of fish landed has been discarded at sea as unmarketable for one reason or another."

A program of market development

"As important as are the other elements in a forward-looking program, none is more vital than expansion of markets. Improving sales for both edible and industrial uses merits the industry's careful attention. Here lies the answer to the problem of more income and, in part, to foreign competition.

Fish for food deserved primary emphasis, for to date it has provided by far the higher value product. The available evidence indicates that consumer ignorance of the variety of fishery products, the nutritional qualities of fish, and the varied methods of preparing fish blankets a huge slumbering demand. It could be awakened by more widespread education about fishery products, by persuasive advertising, and by attractive packaging."

Improved industrial practices

"Perishability is the central feature of New England fishery operations, for the fish begin to deteriorate the minute that they are hauled from the ocean. It must be remembered that later freezing cannot restore deterioration losses; at best, freezing can but maintain the quality present at the time of freezing.

The industry's key task, in seeking to maintain consistent high quality output, is to preserve the best features of fish fresh from the sea. Indeed, the industry must do this to build sales; adequate promotion and attractive packaging are supplements, not substitutes for clean, delicious, self-selling products.

The process of improving industrial practices must begin at sea. Past investigation indicates that a substantial number of fish spoiling bacteria, including those found in the slime and feces of fish, are of marine origin. They can grow rapidly at temperatures not much above freezing."

A study of the New Bedford scallop and flounder industry was done for the Area Redevelopment Administration by the New Bedford Technology Research Foundation (21).

Very little new information is developed by the study. Primary emphasis was on description, suggestions for improvement and on engineering specifications for improved physical facilities. The complete recommendations are given below, however, for the study is typical of the kind of pseudo-research that yields recommendations, most of which are perfectly valid, but few of which have any direct relationship to the research data that was collected. The unfortunate result of such practice is that it creates the impression that problems have been defined, investigated and solved whereas, often, the problems have not yet been correctly perceived.

The recommendations follow:

Personnel

1. An improvement association acting for the benefit of the entire New Bedford fishing industry should be formed; its task being not only to publicize the industry at large but also to act as a united voice to be heard by various governmental and private agencies.

2. It is recommended that the fishing industry initiate plans and show desire for vocational education.

3. A public relations program (of the industry to sell itself to the community and especially to the young men of the community) must be initiated and be both extensive and sustained, and oriented toward the idea of career, economic opportunity, stability and promising future.

4. Candidates for the fisheries course on the secondary school level should be recommended by the guidance counsellor and chosen on the basis of expressed interest in the industry and the result of aptitude tests.

5. Recommendations for the curriculum are listed (with explanations).

6. Further suggestions are given for advanced courses in the scientific or technological aspects of the industry. This would include navigation, electronics, oceanography, laboratory research, hydrology, biology, and advanced seamanship.

7. The industry should continue to avail itself of the provisions of the Manpower Development and Training Act of 1962 as a partial solution for training potential members for the industry. Support should be given to the recommendations of the Secretary of Health, Education and Welfare.

8. A research center should be created to cater to the needs of scallop and flounder fishermen. Such a facility would compliment the proposed educational program.

9. A local depository should be established at the formerly mentioned research center in New Bedford to collect and disseminate information, gained through Bureau of Commercial Fisheries Research, to appropriate elements of the fishing industry.

10. The industry must create a better picture of itself locally.

Vessels

11. Institution of procedures and aids in the weather program should be done by the appropriate parties.

1. Broadcasting marine weather information on a continuous basis
2. Improving the observation systems
3. Allocating a new frequency to Station WOU
4. Educating the fleet to report weather observations
5. Increasing government funds for establishment at strategic points in the forecast areas for:

    a. powerful, continuous broadcasts
    b. specialized staffs of marine forecasters at each forecast center
    c. manned or automatic observing stations

12. The Seafood Producers' Association should request all boats to take advantage of the free inspection service provided by the Safety Office of the Bureau of Commercial Fisheries.

13. A more rigorous self-policing of ships should take place for high standards.

14. A wider differential of insurance rates which are based on performance should be introduced. The accident-prone boats will pay the bulk of the total insurance costs; incentive discounts will be the reward for good safety performance.

15. The United States government and the fishing industry should work out an amicable agreement for the advancement of refrigeration at sea. Research should be initiated to devise a mechanical unit for refrigeration, replacing the present method of icing.

16. The United States Government should sponsor a study to determine the practicality of coverage under a form of Workmen's Compensation Insurance.

17. Exploration should be made regarding the possibility of a self-insurance plan for the vessels of the Port of New Bedford.

18. The Federal Government should not underwrite Protection and Indemnity Insurance.

19. Modifications to the Jones Act to bring this legislation into more realistic focus should be considered.

20. An intensive safety program should be introduced. This must include:

1. Regular inspection of vessels by the United States Coast Guard
2. Licensing of Masters, mates, and engineers
3. Specific aspects of a training program

21. A plan for the Port of New Bedford should be set up that would include:

1. Registration of all marine accidents
2. Adoption of a uniform procedure for reporting accidents

22. In order to keep the fishing fleet in the competitive race for livelihood the officials who make legislative financial decisions must take into account the realistic needs of the boat owner. These include:

1. A longer period of time or other basis to liquidate his financial responsibility
2. Reevaluation of antiquated laws dealing with conditions to be met before subsidy is granted.

23. A greater depreciation allowance should be considered. This should apply to both equipment and hull.

24. It is recommended that continual significant subsidies be applied to the field of Research and Development in the fishing industry. The Bureau of Commercial Fisheries, among others, should have its budget increased so that it can expand its research activities.

Product

25. The factual image of "as fresh as a New Bedford fish" should be exploited to its fullest.

26. Freezing fish at sea should not be implemented by the local interests. If the nearby stocks become depleted necessitating longer trips, New Bedford should at the time revaluate this stand.

27. Government research has clearly anticipated the industry's needs to provide technological improvements to counteract foreign competition. The government realizes that raising tariffs is not the ultimate solution. It is recommended that industry have the courage and vision to apply this research.

28. More concern should be shown in the area of conservation. New Bedford should support any realistic international program.

29. Several suggested proposals for development of a new shore area are given. Supporting data corroborates the eventual choice for the South Marine Terminal.

30. Immediate steps should be taken by the Food and Drug Administration to approve the use of fish flour for human consumption. If approval is not granted a revaluation of the FDA stand should be requested and a realistic program under which this product would be acceptable should be outlined for the industry.

31. The Federal and State government should put more teeth in their regulations concerning sanitation in processing plants.

32. The owners and operators of the processing plants should always show interest in the need for sanitary regulations and should consider them a benefit rather than a burden. These owners should make suggestions and attend meetings of local, state, Federal and International groups who are engaged in setting up these rules and regulations."

In a comparative economic analysis of the groundfish industries of New England and Canada (6) Lynch et al conclude, in part:

> "Foreign competition is an important source of the problems of the New England groundfish industry. Nevertheless, the industry's lack of ability to adjust to diminished but relatively stable resources is also important.
>
> To the extent practicable, the New England fleet should seek to diversify its catch and lessen the dangers of dependence on one species. Whether and how this diversification could be accomplished will depend on a number of biological and economic factors. Its worth, however, has been demonstrated by the ocean perch and whiting fisheries in helping the port of Gloucester.
>
> The Boston trawler fleet includes a number of marginal boats engaged in uneconomic overfishing. Because of the limited resources which the Boston fleet can now effectively harvest, these vessels will be eliminated by the process of attrition which has been taking place since 1948. Thus, contraction rather than expansion is postulated for the Boston trawler fleet.
>
> Not only contraction, but also concentration is postulated for the Boston industry; i.e. the Boston fleet may eventually be characterized by a small number of operators, each owning many boats. In any event, only in this way can the economies of scale necessary to efficient operation in this high-cost industry be accomplished.
>
> The ocean perch fleet in Gloucester and Maine also faces contraction because of the decline in productivity on the more distant ocean perch grounds."

More recently two studies have been made of New England's fisheries. The first, by Bell (27), attacks the problems over a rather broad front. The other, by Farrell and Lampe (28) concentrates on a smaller area of the fin fisheries--market structure--with a somewhat more detailed treatment.

Bell concludes:

> "Although some segments of the New England fishing industry expanded landings in the post war period, most experienced a decline in their share of the vast United States domestic seafood market. The impact of foreign imports on the region's groundfish industry was severe as shown by the decline in landings, vessels and fishermen employed. The Canadians and other foreign producers were in an especially favorable position to supply an inexpensive, frozen groundfish import. Moreover, the advent of the "fish stick revolution" not only created an increasing demand for frozen fish products, but was principally responsible for a rise in the overall per capita consumption of groundfish. One outcome of the foreign capture of the U. S.

processors and wholesalers became more dependent on foreign imports and less tied to domestic fish landings.

New England's foreign competitors obtained their advantage from a system of subsidies which enticed capital into their fishing industries. This capital found a "trapped" supply of labor available at low wage rates. In addition, the absence of unionization facilitated the use of a maximum number of crewmen at a fixed wage bill, determined by the "lay." This inflow of capital expanded landings and kept ex-vessel prices low, thereby producing further inroads into the U. S. domestic market. New England ex-vessel prices were under the pressure of foreign imports and failed to exhibit any secular rise during the post war period. The competitive situation coupled with rising input costs forced vessels from the fleet and fishermen from the industry as capital returns and wages deteriorated when compared to the overall New England economy.

A study of the profitability of the present New England fleet revealed a wide dispersion in the rate of return on both total assets and net worth. Although the industry's overall rate of return is much lower than in most sectors of the U. S. economy, some segments are earning a competitive return on invested capital. On the average, large trawler operations seem to earn 10 percentage points more on total assets than small trawler operations. The ability of large trawlers to generate more revenue per unit of capital employed is the principal reason for their superior earnings performance. This is probably linked to days at sea per year and other economics of scale. Although the results are tentative, they do suggest that trawler operations at larger levels are more profitable.

A competitive advantage of foreign fisheries also stem from the use of more modern equipment. For example, they have been the first to consider the new fishing technique of stern trawling. The New England fleet is extremely old and new additions have not deviated from the conventional side trawling technique. In this analysis, the stern trawler (of comparable size) was shown to be at least 20 percent more productive measured by catch per trip than the conventional side trawler. However, the stern trawler is subject to a maximum of 20 percent higher construction costs. However, after relative revenue and operating costs were estimated, the analysis revealed that the stern trawler would yield a higher return on invested capital. The use of a highly automated stern trawler would tend to raise productivity, increase landings, and produce higher revenues for the New England fishing industry.

> In contrast to the Canadians who have been able to attract capital to their fishing industry, the New England industry has been under a severe handicap in this respect. A 1792 Public Law prohibits the purchase of fishing vessels constructed outside the United States. Since foreign vessels are about 50 percent cheaper, the New England producer is at a competitive disadvantage. The 1964 Fishing Fleet Improvement Act promised to erase this competitive disadvantage as subsidies are now available up to 50 percent of the cost of vessels constructed in American shipyards. Surveys by the Federal Reserve Bank indicate that building plans are in store for nearly two-thirds of the New England fleet with approximately 65 percent of the owners intending to use the Subsidy Act.
>
> Stern trawling and the 1964 Fishing Fleet Improvement Act have the potential of creating some growth in groundfishing and other segments of the New England industry. However, much of this growth may be advantageously tailored to the fresh fish market which might be expanded to many southern and western states. The ability of the New England fleet to compete in the frozen fish market will depend on the acceleration in vessel modernization and design. Until this occurs, the Canadian competitors will still enjoy a competitive advantage in the use of labor (i.e. larger crew for a fixed wage bill, hence reduce cost per worker) which may only be offset by rapid automation of the New England fishing fleet."

In a two part study, Farrell and Lampe (28) concentrate on delineating the major functional market levels for finned food fish caught by the New England fishing fleet, and arrive at demand and supply parameters which describe these market levels.

Though no recommendations for action are included in these studies, the second part contains conclusions pertaining to the New England Haddock fisheries which are of vital concern to the industry:

> "Results of tests in the cold storage holdings area indicate that these have an important moderating influence on the effects of catch seasonality. The desirable effects, however, are all on the side of processors and ultimate consumers for whom goods are held. Although the developments in the quick-freezing area may have, on the whole, expanded opportunities for marketing of fish, given the present conditions in the fleets, they have worsened the position of domestic fishermen. The best indicators of an upward demand shift in the first half of the year are found in the movements of holdings. However, other than in the fresh haddock market, benefits are small to the fishing units.

> The high elasticities of demand in the landings market imply that the position of the New England fishermen is perilous. Should they attempt to restrict the catch by concerted action, or by the imposition of regulatory devices by the government acting in their behalf, processors would tend to reduce their purchases drastically in this market. On the other hand, if they continue operating in the present manner, the foreign operators will obtain larger and larger shares of the market and, although their extinction will be longer in coming, they will just as inexorably price themselves out of the markets.
>
> Several possible avenues of escape from this dilemma are open to the fishermen. Perhaps the chief of these is an increase of productivity through modernization programs with a view to bringing the fleets up to the levels of efficiency of some of their foreign competitors. A more truly *ad valorem* program of tariffs might be of assistance to the fishing group for a time, but the elasticities of demand at the consumer level indicate that at the higher prices which would result, there might be drastic drops in consumption. At least in the haddock market, measures designed to expand the fresh market would appear to be of some advantage to the fishermen. Without cost reductions through either the increased efficiency in fishing or increased efficiency in processing, the only likely alternative to continuing pressure on the markets will be for more fishermen to leave fishing."

As indicated by the attached bibliography, the above is but a sample of the studies which have been made. They describe an industry containing large numbers of small producers, some of which are the most independent of entrepeneurs. The quantity of their product is importantly determined by factors beyond their control, and the quality factors and the factors affecting demand are not well understood by the typical producer (fisherman).

Most of the practices and conditions complained of in the past by writers on the subject of New England fishing still remain. However, increased interest in ocean problems, recognition by states and the nation of the fishermen's plight and the drama of a foreign fleet at our shore have lead to greater activity on behalf of the industry.

Not much of this activity, either local or national, has been effective in altering the basic methods and technology or economy of the industry.

New Bedford has certainly seen a resurgence of activity and this has been reflected in the construction of major new port facilities. Interests in pet food, tuna and FPC have established in New Bedford.

Gloucester faces continuing problems in its food fishery and industrial fishery as well. Such improvements as have come about in Gloucester facilities depends upon processing imported fishery products. The last four years has seen the construction of one major freezer processing facility.

The Boston market area faces continuing decline with no significant change in facilities. There have, however, been two major additions to the fleet.

With the reopening of the industrial fish processing facilities at Point Judith, and excellent fish meal prices the fleet at Point Judith has been strongly active and this will probably continue.

In Maine, the development of the shrimp fishery at Portland has been significant.

Modest reductions in quotas for imports (of about 3,000,000 lbs.) enterable at the low rate of 1 7/8¢ per pound will probably have little real effect on market conditions.

Nothing of major significance by way of changed fishing technique has taken place although New Bedford fishermen have purchased and are using the Atlantic western trawl tested extensively in Canada and discussed with N.B. people by a Canadian fishing technologist.

The restraints placed upon the industry by workers' organizations is still important. The survival of such ports as Point Judith has been partially attributed to lack of labor organization. This may be true but not necessarily for the reasons implied in the suggestion.

It is not the case that fishermen fishing in organized ports have superior incomes. It is the case that organizational rules restrain efficient resource use. Thus a non-organized fishery has greater flexibility in the use of facilities than it otherwise would. Where this leads to increased output per man incomes improve.

Comments

It would appear that opportunities for increasing the harvest of fisheries resources off the New England coast lie in four areas.

First, the removal of shallow water fisheries from their status as a common property resource thus encouraging publicly controlled private fish (shellfish) production. Some of the technical and economic problems involved in harvesting shellfish, for example, are being clarified (29). Second, through development of proper equipment for handling and filleting a variety of species of fish, permit the marketing, as food fish, of species formerly sold as industrial fish. Third, press for legislation which will treat fisheries resources in the same manner as other ocean resources and thus grant to a country the resources on its continental shelf. Fourth, follow closely the research and testing on the fish protein concentrate with an eye to producing this.

Increasing the amount of fish landed is, of course, no guarantee that long-run profits will increase. There seem to be two important areas, however, in which changes could lead to a more profitable industry. First, the matter of cost per unit of catch. Though importantly affected by the abundance of the resources, the quality of the factors of production (men, vessels and gear) are also important. Bell has shown greater profitability of large trawlers, particularly of stern trawlers (27).

Holmsen has shown, for other ports, that the quality of the human resources employed seemed even more important.[2] It may be that for some purposes larger vessels are needed; maybe for some purposes small, fast vessels combined with better shore facilities are preferable. More research is needed to find out.

One grossly neglected area has been the education and training of fishermen. (Establishment of a 2-year fisheries school has now been approved at the University of Rhode Island.)

Second, the industry should be able to expand the market for its fresh products throughout the northeastern part of the country by increased attention to quality control from the point of catching and throughout the handling, processing and shipping phases. This requires technical improvements and education, however, and there may as well be need for some imaginative market expansion work. There seems little doubt that more fresh fish can be sold, the question is whether the cost of these added sales will leave a profit to fishermen and handlers.

The problems associated with methods and technology have not been overlooked in the past, but the focus has been somewhat narrow. It is difficult not to be impressed by the insufficient techniques employed in handling fish in ports like Boston. It is also difficult not to be impressed by the rundown state of the fleets in Boston and Gloucester. Unfortunately, these spectacular shortcomings detract from a fuller explanation and appreciation of other problems.

Within the processing plants themselves exist major problems not only of quality maintenance but of technology. While we may tire of hearing that fish are still caught as they were hundreds of years ago few call attention to the fact that the fillets are removed from fish as they have been for years. While great strides have been made in processing farm food products only modest changes have taken place in fish processing. Most of these changes are adaptations of processes developed for other products.

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[2] Holmsen, Andreas. Paper given at Boston Federal Reserve Bank Conference on Fisheries Economics (not yet published).

The development of machinery and equipment for filleting, for example, is costly. The potential market for equipment is small. The food machinery industry in the U. S. has devoted its attention to other areas with markets of greater significance.

It should not really be very surprising to find fish products imported into the U. S. in a condition such that highly specialized and effective production techniques can be employed.

While the low estate of the physical feature of technology can be easily appreciated, the low level of organizational or operational technology is not so easily observed. Plants processing frozen fish blocks can or should find it quite simple to employ modern management and control techniques. Their output is relatively stable and workers can be well trained and systems well debugged. In effect many of the costs of variability have been shifted to other countries.

Consider, however, the problems of domestic producers using a raw "fresh" fish as a basic input. The level of this input fluctuates wildly from day to day and month to month and at times from year to year. The problems of effective organization and control under these conditions are myriad and rarely is the management sufficiently sophisticated to cope with them effectively. The problems of instability are compounded by the response of the labor force to these conditions and the constant need to train new workers or to settle for the less able.

Were quality problems resolved aboard vessels it would quickly become apparent, in this writer's opinion, just how severe they are ashore.

New research in preservation--radiation pasteurization, nitrogen freezing, etc.--in fisheries are now being explored. Within the context of an unstable industry with its attendant management problems it is difficult to anticipate a rapid rate of innovation without important structural change.

Techniques for shipboard preservation perhaps serve as examples. The techniques have been well researched and publicized for years but to this writer's knowledge no commercial vessel in New England has used refrigerated sea water; nor do many employ even the most rudimentary sanitary practices.

It is difficult to appreciate the merit of programs of promotion emphasizing quality.

Effective extension of management and technical research results might well assist considerably in some areas but it is clear that considerably more basic research is required.

Many studies have been made of the New England fisheries. With apologies to the authors whose works do not fit in the general pattern, this pattern never-the-less looks as follows: With few exceptions, the economic studies have been rather broad and inclusive and seem to suffer from a lack of a realistic economic model of the industry or the segment that is being described. Conclusions, often, are based upon scanty data. Where the studies have become specific to the problems of the fishermen, the results seem to be descriptive rather than analytical; and when analytical seem to confirm what the fishermen already know.

From discussions with fishermen one would judge that many of the technical studies have suffered from similar afflictions. Lack of applicability of biological and technical research; lack of understanding, on the part of the researcher, of what are the fishermen's problems--these are common complaints from the industry.

In the opinion of this reviewer, the industry and the New England economy need two kinds of research effort on the fishing industry. First, joint economic-biological-legal research on the proper management practices for a common property resource, recognizing the growth functions of the resource (fish), the decision functions of the fishermen and the political-legal environment in which the former two functions operate. Secondly, point economic-engineering research (for example, (29)) tackling problems in catching, handling and distribution.

To obtain industry support for research presents obstacles. To obtain industry support for specific elements of public policy presents even more severe obstacles.

Two matters come immediately to mind: 1) fishery limits, and 2) vessel subsidies. Both these subjects have been discussed at length and various recommendations have been made by many writers. It is the case that our unsubsidized fishermen pay a large penalty in constructing vessels and it is the case that the subsidy in itself discriminates among fishermen. Proposals to remove restraints on foreign construction, to increase subsidies or broaden their scope have failed in general to recognize the heterogeneity of the industry group. To wit, the unsubsidized vessel owners with a vessel in good condition looks upon any amelioration as a threat of lower cost production by others and establishment of his competitive disadvantage.

Consider also proposals for changes in fisheries limits. While the fishermen may favor such a move, large and broadly based processors may not. This is because the extension of limits by other nations may have already impinged upon their operations elsewhere and they seek reductions in limits there.

It is perhaps unwise to expect groups of heterogeneous interests to cooperate effectively simply because they happen to require fish as an element in a process. The problem of lack of community of interest should be nowhere more apparent than with those firms which are domestically based but own substantial production and processing facilities abroad (e.g. Canada).

Related to the issue of vessel subsidies is the matter of credit for construction. Conditions here have not much improved. It is interesting to note however that a federally sponsored agency limited by charter to lend to other groups has considered the potential of establishing credit facilities for production and construction purposes in the fishing industry.

Perhaps no matter is so sure of support from fishermen as market development--particularly if this suggests a market for a fish presently abundant but not extensively exploited. There is the vision of another "ocean perch" constantly in view. Unfortunately, the support is frequently directed to promotion, a relatively cheap and easily seen activity. Little support is effectively given to the long hard process of product development and even less the economics of the relation of new products to old ones. However, there is room for substantially increased effort here. Not only in development of products and markets but the assessment of potential impacts on the system as a whole.

III. Other Biological Resources

The harvesting of plankton will probably, for a long time to come, be a relatively inefficient way of gathering nutrients or chemicals from the sea. Walford (44) recounts North Sea experience:

> "In the North Sea in 1948, fishermen caugh on the average 58.6 tons of herring in 100 hours. To collect plankton equal to that quantity of herring it would be necessary to strain over 57.5 million tons of sea water."

Seaweeds provide useful substances, primarily agars, algins and carrageenins used in the food and drug industry as emulsifiers, gelling agents and clarifiers. As far as is known to this writer there is only one plant in New England which produces various agents from seaweed. This plant is growing, however, and apparently finds it profitable to import dried seaweeds from various parts of the world. Indications are that there is not a large supply of seaweed close to the coast which would serve as a base for other such businesses. This should, however, be investigated through scientific and economic studies.

Though seaweeds have been used for food, the yield variability and variability of nutritive and chemical composition makes this a somewhat remote possibility.

> "Even in Japan, where seaweeds are considered such an absolute necessity that there is no question of educating the public to eat them, the total annual production of fresh seaweed is less than three percent of the rice harvest." (44, p. 277)

IV. Geological Resources

According to Emory (46) the Atlantic Continental Shelf may contain sizeable deposits of sand and gravel, manganese, phosphorite and petroleum. Indications are that the Shelf outside New England is a source, primarily, of Sand and Gravel but possibly also of petroleum though in fairly deep water on the continental slope. Since the phosphorite and manganese are located south of New York, New England would be at a comparative disadvantage because of transportation factors should it become economically feasible to mine these deposits.

As long as sand and gravel for construction purposes are readily available ashore, it probably would not pay to mine it from the sea floor. However, it is the opinion of this writer that the possibility should be investigated of mining sand in combination with clearing or constructing boat harbors. It may be that the development potential of the latter may help defray the cost of the former and make it more competitive with land-mined sand.

V. Marine Recreation

Marine recreation encompasses such activities as summer restaurants; summer housing, hotels and motels; marinas and boatyards; sportsfishing businesses; and beaches.

Using resources which are rarely sought for other economic activities, the marine recreation industry can significantly increase employment and earnings in a community. Where this is almost the only industry, however, it requires a considerable influx of summer visitors to provide the base for a rather small year-round economy.

From the point of view of economic research, most of the studies which have been made of the marine recreation industry are low in quality. This is not entirely because it is a difficult subject full of non-economic variables. An important reason is that most of the work has been of the short term contract type, where insufficient time is available for data collection and analysis and a "quickie" study results, relying on secondary data, a few interviews and the graphic arts.

However, since there is little dispute about the fact that the demand for water-oriented recreation is increasing and is pressing on the supply, little damage has been done. But damage will be done in the future when the choices of action become more critical, unless we obtain information of a higher quality than heretofore about the factors involved in using our ocean resources for recreational purposes. That information includes data on the production relationships, the sources of revenue, traffic, pollution, (community costs) as well as social and political factors.

Thus, the states of Connecticut, Rhode Island, and Massachusetts (Cape Cod) all have comprehensive plans for recreational development including marine recreation (49, 57, 58)

These reports are based on economic, technical, and land-use studies. On closer scrutiny, however, the foundations of the economic studies either disappear entirely or at best turn out to be somewhat difficult to substantiate. They are largely summaries of what is directly available from various Census sources. Once this has been established, estimates covering 20 to 40 years into the future appear with seeming ease; but with little explanation and with no relevance. For the basic questions about the way these businesses affect the local economy are still unanswered. How would a certain development affect the community costs and quality? What is the linkage between this and other industries or businesses; do they help or hinder one another? There is a strong need for more knowledge in this area. Below is reproduced a table from a recent study, which indicates the great variation found among various marine-oriented activities with respect to factors important to a community.

Selected Measures Which Affect the Value of an Industry to a Community.[A]

Group	Earnings of Persons[1] Per Cent	Exports minus Imports[2] $ Million	Earnings per Employee[3] Dollars	Gateway Characteristics[6]	Traffic Generators[7]	Pollution Effects[8]
Marinas & Yards	49	-.2	4,224	3	L	M
Marine retail & wholesale	24	-3.4	4,686	1	L	L
Marine Manufacture including ships	52	200.2	7,519	2	H	H
Beaches & Recreational	56	-.4	2,140[4]	4	H	M
Fishing Industry	63	29.6	N.A.	2	M	M
Marine Research	38	32.5	9,410	2	L	L
Marine Agents & Brokers	42	-.4	5,764	0	L	L
Marine Restaurants	43	-.6	1,138[4]	2	L	L
Marine Const. & Transportation	68	.1	N.A.	0	L	L
Marine Military	87	187.8	3,205[5]	5	H	H
Total or Average	60	445.2	5,081			

[A] Source: Rorholm, Niels. "The Economic Impact of Marine Industries in the Southern New England Marine Region." Economics of Marine Resources No. 6, University of Rhode Island, Kingston. (In process.)

[1] Percentage which Wages, Salaries, Profit, Interest, and Rent are of Total Sales.

[2] Sales out of the Region minus purchases from outside the Region. This measure underestimates the effect of recreational enterprises where the purchaser may come from outside the region but will make the purchase within the region.

[3] Includes wages, salaries and profit.

[4] High proportion part-time employees.

[5] $5,902 for civilian and $2,825 for military (excl. dependents' allowances).

[6] 0=Not a gateway enterprise to 5=strong gateway effect, i.e. brings employment for other businesses in the area directly as opposed to indirectly through earnings of employees.

[7] H=High; M=Medium; L=Low, i.e. activity does not put high burden on transportation network.

[8] Low, Medium or High degree of air or water or space pollution.

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   Assesses the competitive position of the sea scallop industries of the United States and Canada. By description and analysis of the industries, and of the social and economic milieus in which they operate, the report attempts to isolate the factors which account for the competitive position of each.

2. _____, The Importance of the Fisheries in the New England Economy.

   An evaluation, made for members of Congress, of the New England fisheries industry, including landings of fish in New England, value of catch, value of processed fish, value of vessels, plants and equipment, and earnings of fishermen. Also noted are income payments from the fisheries industry compared to total income payments (also by states) and capitalized earnings value of the fisheries. (LC)

3. _____, Exempt Trucking of Fresh and Frozen Fish and Shellfish in Interstate Commerce, by John D. Abrahamson and Carl P. Hoffman, Jr., Circular 133, (1961).

   Analyzes data on fresh and frozen fish shipments by truck in interstate commerce. Based on questionnaire survey of shippers and motor carriers, presents data on types of product shipped, types of shippers, types of carriers used, quantities shipped, origin and destination of shipments by major areas of country, and reasons for using types of carriers indicated. Findings of the study include distribution of fishery products by motor carrier in and out of the New England area. Study was undertaken to supply information on distribution of fishery products by motor carrier which has greatly increased in importance but for which information was not available because of exemption of this type of transportation from regulation by the U. S. Interstate Commerce Commission.

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Abstract.--Preliminary findings from a current geological investigation indicate that the continental shelf and the upper part of the continental slope off the Atlantic coast of the United States may be the site of large deposits of construction sand, phosphorite, manganese oxide, and petroleum. The sand covers most of the continental shelf, the phosphorite occurs near the top of the continental slope and its southward extension inshore of the Blake Plateau, and manganese nodules are common on the Blake Plateau. Petroleum source beds and structures appear to be most favorable along 1) a seaward extension of the Cape Fear Arch, 2) the outer part of the continental shelf from south of Boston northeastward probably to the Grand Banks of Newfoundland, and 3) a probable fault zone southeast of New York City.

IV. Marine Recreation

47. _Preliminary Examination of Bass Harbor, Maine_, report to U. S. Congress, January 31, 1957. U. S. Army, Corps of Engineers, New England Division Office.

An evaluation of the need for further study of navigation improvements desired by local interests to provide additional anchorage areas for small commercial fishing and recreational craft. (NA)

48. Waterfront Study, Salem, Massachusetts. Blair Associates, September 1963.

Prepared by Blair Associates in cooperation with the Salem, Mass., Planning Board and the Massachusetts Department of Commerce.

Identifies and analyzes waterfront land uses, specifically the maritime facilities; discusses factors affecting future development; and outlines potential development plans for the waterfront area. Proposes action recommendations for implementing these plans.

49. Cape Cod 1980: A Sector of the Massachusetts State Plan. Prepared by Blair Associates Incorporated for the Massachusetts Department of Commerce, Barnstable County Commissioners, and Cape Cod Economic Development Council, August 1963.

Sponsored by Massachusetts Department of Commerce, Barnstable County Commissioners, and Cape Cod Economic Development Council, and partly financed by an Urban Planning Assistance Grant from the U. S. Housing and Home Finance Agency.

Presents a comprehensive plan for the future development of Barnstable County based on detailed studies of the area's economic base, population, land use, transportation. Discusses impact of the National Seashore, land development patterns and development controls. Contains recommendations for implementing the plan. Includes detailed maps.

50. Boating is Big Business on the Bay, by Niels Rorholm, University of Rhode Island, Department of Agricultural Economics, January 1964.

Article in Maritimes, Volume VIII, Number 1, University of Rhode Island Graduate School of Oceanography, Winter 1964.

Discusses estimates of the primary economic effects of marinas upon communities. Estimates are based upon a survey of Narragansett Bay boatyards and marinas and data published by the National Association of Engine and Boat Manufacturers. (LC)

51. Economic Impact of Narragansett Bay, by Niels Rorholm. R. I. Agricultural Experiment Station Bulletin No. 374. University of Rhode Island, Department of Agricultural Economics, December 1963.

Estimates present economic effect Narragansett Bay exerts upon its surrounding communities. Develops a framework within which it is possible to analyze important factors relative to multiple use of resources and makes recommendations for future considerations of development.

52. Little Narragansett Bay and Watch Hill Cove, Pawcatuck River Project, Rhode Island and Connecticut. U. S. Army, Corps of Engineers, New England Division Office, October 1959.

Report for U. S. Congress on economic and engineering investigation of the need for a breakwater jetty, protection, and additional anchorage for recreational craft.

53. Survey (Review of Reports) on Josias River, Ogunoquit, Maine, report to New England Division, 1956.

An economic and engineering evaluation of the need for Federal construction of additional anchorage area for small boats. (NA)

54. Survey (Review of Reports) on Cape Cod Canal, East Boat Basin, Massachusetts, report to United States Congress, July 27, 1956. U. S. Army, Corps of Engineers, New England Division, 1956.

An economic and engineering evaluation of the need for Federal construction of an enlargement to an existing anchorage basin for small boats. (NA)

55. North End Waterfront Redevelopment. Boston City Planning Board, May 1956.

Gives a plan for redevelopment of the Boston waterfront from Northern Avenue to Commercial Street. Calls for elimination of most of present buildings and erection of modern facilities, including a park, a museum, a marina, new piers, ship service establishments, and a heliport. (LC)

56. Recreation Property in the Seacoast Region, 1945 and 1952, Preliminary Report. New Hampshire State Planning and Development Commission, 1953.

Study of trends in importance of vacation activities and recreation property as a source of tax revenue, economic support, and community development in the Seacoast Region, showing growth from 1945 to 1952.

57. "Rhode Island Recreation Guide Plan". Rhode Island Development Council. June 1965.

58. "Connecticut Comprehensive Statewide Outdoor Recreation Plan 1965-1970." Connecticut Department of Agriculture and Natural Resources.

TASK FORCE REPORT I

A Survey of the Literature on Recreation, Tourism, and Beautification in New England

RICHARD PFISTER

SECTION 1 EVALUATION

I. Introduction

Many studies have been made concerning various aspect of recreation, tourism and beautification in New England. Some of the studies are quite narrow in geographic coverage while others include an entire state or even the entire region. The studies also vary greatly with respect to coverage of the various facets of the general topic. The survey of these studies suggests a number of generalizations concerning the findings and recommendations despite their wide variation in coverage and content. The survey also indicates disagreement concerning certain matters and gaps in the available information. This paper presents a brief summary of the major findings of the literature together with some general comments with respect to the present state of knowledge concerning the field.

II. Summary of Findings

A. There is general concensus that expenditures for recreation and vacations will grow rapidly in the future. Thus, the demand for recreation facilities and ancillary services will increase greatly.

B. New England has many natural, historical, and cultural features that attract vacationers. The region's endowments thus put it in a good position to compete strongly with other resort areas for the growing expenditures of vacationers and tourists.

C. Current use of recreational areas indicates a great need to expand facilities at existing sites if possible and to acquire and develop additional sites. The expected growth in demand for recreational facilities adds strength to the arguments for increasing the recreational facilities in the region.

D. The region could do better in competing with other resort areas if it had more and better facilities along with a bigger promotion program.

E. The tourist or vacation industry in New England is an important one that provides substantial income. Because of its importance, the industry deserves more promotional support, especially from the states.

F. The tourist business is highly seasonal, with the vast bulk of the business occuring during the summer months.

G. The bulk of the business firms that cater to tourists are small and have the usual problems of small business. The quality of management is typically low and the mortality rate is high.

H. Most tourists and vacationers in New England--perhaps 90 per cent --come from within a radius of 500 miles. This means that the main market for the New England tourist industry is New England itself and the Mid-Atlantic states.

I. Many federal, state, and local governmental agencies as well as some private organizations are involved in the management of natural resources in the area. Frequently cooperation among these agencies is lacking or inadequate.

J. The magnitude of the tourist business and the impact upon the local economy are difficult to measure because the necessary data are not readily available.

III. Summary of Recommendations

A. Public and private agencies should greatly expand their recreation facilities to meet present and anticipated future demand.

B. States or other public bodies should acquire many scenic sites "before it is too late." The presumption is that otherwise private developers will soon take over such sites to meet the growing demand for recreation and that private developers will not make the "best" use of these areas.

C. There should be intelligent planning to insure the "best" use of natural resources. The planning should allow for the different uses of resources so as to obtain something approaching an optimum mix of uses. There should be some public control of privately developed areas through zoning or other regulations to insure the best possible use of the resources.

D. There is need for formal arrangements to bring about coordination of plans and programs on the part of all agencies involved in the management of natural resources and in the provision of recreational facilities.

E. Because of the present highly seasonal nature of the tourists business, it is important to try to build up the business during the off peak periods. The developers of resort areas should try to develop a combination of facilities so as to attract visitors during all seasons.

F. There should be a regular program of assisting small businesses with their management problems. The program could perhaps resemble the extension service for agricultural activities.

G. Greater efforts should be made to improve and protect the quality of water resources, which are so important in recreational activities.

H. More and better information should be obtained with respect to the magnitude of the tourist business and the impact of this business on the local or regional economies. It is also important to keep abreast of the preferences and habits of vacationers.

I. Both public and private organizations concerned with promoting the tourist business should expand and improve their promotion efforts. There seem to be a fairly general opinion that New England is losing ground to resort areas in other regions of the country, in part, because New England has not increased its promotional efforts as the other regions have.

J. Some of the more recent planning reports suggest the use of "cluster" housing developments in recreation areas to permit a greater number of people to enjoy a limited resource such as the shore line of a lake. Cluster housing developments would also permit the preservation of more open spaces.

IV. An Evaluation

The various studies included in the survey exhibit a surprising consistency in their findings and recommendations. The studies nevertheless indicate a few inconsistencies, some areas of possible conflict, a number of problems, and some gaps in the existing knowledge of the field. A majority of the recommendations have withstood well the passage of time so that they seem as appropriate today as when they first appeared. The following numbered paragraphs contain general comments by way of evaluating the existing studies.

A. Although the studies are unanimous in stating that the tourist industry is important in New England, there is no clear picture as to how important it is in relative terms. All six states have prepared estimates of spending by tourists, but there is considerable variation in the techniques employed to make the estimates. The definition of what is being measured also varies from study to study. Some measure expenditures of out-of-state visitors only while others include spending by residents as well as out-of-state visitors.

There is need for a study to estimate the magnitude of the tourist business by using the same definitions and the same techniques for all New England states. Comparisons will then be more meaningful. The attempt to estimate tourist or recreation expenditures can easily become an expensive and unending task. The temptation is strong to try to measure expenditures accurately down almost to the last dollar. Diminishing returns undoubtedly set in quickly in attempts to measure these expenditures. Actually there are rather simple techniques that yield reasonably reliable estimates without undue cost. The tourist industry is difficult to pin down statistically. It is not clear that expensive efforts to refine the estimates serve any useful purpose in policy considerations. Furthermore, it is not certain that the expensive methods yield more reliable estimates than the simple, less expensive methods. Policy makers should have an approximate measure of the size of the business, but the simple estimating techniques appear at the present to be adequate. The immediate need is more for adoption of the same estimating techniques and definitions.

Some states claim that tourism is their second or third largest industry. But the method of ranking industries is not clear. Generally states measure the size of the tourist industry by an estimate of tourist expenditures. This is equivalent to using gross sales. A better measure of the economic significance of an industry to a given area is value added or, what is similar, income originated. Attempts to measure the economic significance of the tourist industry should emphasize value added. And the comparison of various industries should also be in terms of value added. In addition, some judgments might be made concerning multiplier or linkage effects of the initial income originated. Another useful measure of size is employment, and comparisons could take place on this basis as well. The important point is that comparisons should involve the same measures and the measures should be meaningful ones.

B. Disagreement exists concerning the present and expected future role of tourism in the economic base of states in the region. Several studies suggest that tourism is a major part of the economic base and that future growth of certain states will depend heavily upon the growth of tourism. By contrast, a minority of the studies conclude that other industries now provide, and will continue to provide, the primary support for the economy of the individual states. Certain local areas may depend primarily upon tourism, but larger geographic areas, particularly the states, depend primarily upon other industries. In this view, tourism is and will be only a supplement to the other more important basic industries. The tourists industry is highly seasonal and not a large employer of labor.

This disagreement is closely related to the measurement problems discussed above. The survey of studies suggest to this reviewer that the minority view is the correct one. For units as large as states, tourism probably constitutes a relatively small part of the economic base. The industry does have good growth prospects, however, and will probably increase in importance relative to other industries. But the business will continue to be highly seasonal and will not soon provide steady, year-round support for the economy.

Despite the efforts to expand the tourist business in the off peak periods, the business remains highly concentrated in the summer months. The summer business will probably maintain its dominance until such time as school practices and business practices change. Most families with children can take vacations only when the children are not in school. If schools should be operated the year round with staggered vacation periods for the children, more parents would be able to take vacations at time other than in the summer. For this to happen, employers would also have to allow staggered vacation periods instead of scheduling them primarily in the summer. Until such changes as these occur, the vacation business will continue to be strongly concentrated in the summer months.

C. Too many of the reports fire a scatter gun when making recommendations. They say that many things should be done and do not indicate priorities. Policy makers are apt to react by saying that they cannot possibly do all of the recommended things and with no indication of what should be done immediately and what can wait, they are apt simply to do nothing. Another weakness of many reports is that their recommendations are very general and, whether general of specific, they do not include cost estimates. The more recent planning reports are much better in this respect because they generally suggest priorities for specific projects and also include cost estimates. They are thus providing helpful proposals to policy making bodies.

There is still a real problem, however, in getting approval for recreation programs. These programs must compete with other programs for public money. Ideally there should be benefit-cost analyses of all programs competing for public money. Such analyses might shift the pattern of public spending and might lead to a change in the total of such spending. Benefits associated with recreation are sometimes very difficult to measure, and it is uncertain as to how recreation programs would compare with other programs if benefits could be measured in all cases. Those making recommendations should have these considerations in mind so as to provide better guidance to policy makers. It is particularly important to suggest priorities and to indicate something about the unexpexpected benefits as well as costs.

D. In order to prevent the tourist industry from destroying itself, the expansion of recreation facilities and ancillary services must take place without destroying the aesthetic values of landscape and histroy that attract visitors. On state-owned land, the necessary controls will exist. But there will be some private recreational developments and private establishments will provide most of the ancillary services. Zoning will be necessary to prevent undesirable development on private land, but the legislation to establish zoning may be difficult to obtain. The recent planning reports stress the need for zoning to keep resort areas attractive. It will undoubtedly be a hard fight to obtain the protection afforded by zoning.

Groups interested primarily in conservation and preservation of natural scenery foresee a threat to the scenic beauty of a region if much industrial development occurs. Other groups believe that such a conflict need not arise provided there is zoning and careful planning. They suggest the possibility that expanded and improved recreational facilities might make the region more attractive for light industries employing highly skilled and professional workers. The assumption is that recreational amenities would be especially attractive to the managers and employees of such industries. The hard core conservationists may, however, oppose any development including the development of recreational facilities. The recent plans for outdoor recreation include the preservation of natural areas. The conservationists would like to preserve many more areas in their natural state.

E. Although the studies agree on the need to expand recreational facilities, there is no clear suggestion as to how much expansion is necessary. The basis for the need is the crowding at present recreation areas and the expected growth of expenditures by individuals on recreation. But to a certain extent the supply of recreational facilities creates its own demand--people tend to go where the facilities are. Conceivably New England could improve its facilities so as to take a greater share of the total tourist business. The demands for recreational facilities in New England are thus not easy to predict. There will be a growth in demand but how great it will be depends upon New England's success in competing with other resort areas.

F. In the recommendations for expansion of recreational facilities, the division of responsibility between public and private organizations is frequently not clear. It is generally assumed that states or other public bodies should acquire scenic or historical sites. The construction of any facilities on the sites could be carried out by the public agencies or by private organizations subject to standards and regulations established by public agencies. Most of the ancillary services required by tourists are provided by private establishments. The quality of these private establishments plays an important role in the attractiveness of an area to tourists. For the success of an area, the public and private facilities both need to be attractive and both need to grow together. This coordination may not always occur. Some studies suggested that private businesses must carry the major burden in improving facilities so as to attract more tourists. Others concluded that the state must take the lead by improving public ficilities and that the private businesses will do their part once the demand for their services arises. The studies have given little consideration to this problem of coordination between public agencies. States might consider various kinds of subsidy to induce the desired action by private business when it is not forthcoming otherwise.

G. The studies are generally in agreement on the need for formal coordination among the many agencies concerned with natural resources and recreation. Such coordination or cooperation will not come about easily in many cases. Vested interests and conflicting objectives among the agencies will be obstacles to cooperation. Coordination is certainly possible but it will not come about by just saying it should exist. There must be an organization or individual that has the power to resolve the conflicts. This problem has not received much attention.

H. A general conclusion of the studies is that efforts to promote New England as a vacation spot are inadequate. Some studies cited expenditure figures to show that the New England states spend much less for promotion than other resort states. Those who advocate more promotional effort by states generally feel that private establishments catering to tourists should also engag in greater promotional efforts. It would probably be advantageous to have a goo deal of cooperation in promotional activities. Cooperation can go only so far, however, before conflicts arise because the individual states and individual loca areas are competing for the vacationers once they are in New England.

The recommendations for the most part simply call for greater promotional effort without specifying a program. There would undoubtedly be disagreement concerning the market areas toward which to direct any extra promotional effort. The majority of vacationers in New England come either from New England itself or from the Mid-Atlantic states. This fact has led some people to recommend that promotional efforts should be directed at more distant population centers so as to bring in more "new money." The objectives should be to increase New England's share of vacation expenditures of New Englanders as well as outsiders. The promotion should be directed at the market areas in which it is most effective in achieving this goal. It would seem that promotion in the nearby population centers would be more effective in achieving the desired goal than promotion in more distant population centers.

I. There is need for a current survey to determine what progress if any has occured toward implementing earlier plans and recommendations. When plans and recommendations have not been implemented, it would be worthwhile to find out (if possible) the reasons why they have not been implemented. Such information, if obtainable, could be useful in trying to secure approval of recommendations in the future.

J. It would be useful to compile information on current expenditures of all agencies in maintaining present public recreational facilities, in constructing new facilities, and in acquiring new sites. This information would provide a useful comparison of present expenditures with what would be required in the proposed recreation plans.

SECTION 2 BIBLIOGRAPHY

I. General Studies

Although this survey covers only studies pertaining specifically to New England, there are many studies of other states and regions or of general topics related to outdoor recreation. It would be useful to compare some of these other studies and the New England studies with respect to methodology, findings, analyses, and recommendations. In the time available for this survey, it was not possible to make such comparisons. Among the other studies, the final report and the background study reports of the U.S. Outdoor Recreation Resources Review Commission are especially valuable. The study reports provide many references on the general topic of recreation. The Bureau of Outdoor Recreation, U.S. Department of the Interior, is preparing a National Outdoor Recreation Plan that will bring together a great deal of information concerning outdoor recreation. Other potentially useful references are noted below.

1. Crampon, L. J. A Bibliography of Surveys and Statistical Reports on Tourism and the Visitor Industry of the United States. Bureau of Business Research, University of Colorado. August, 1960.

   A list of studies by states and regions.

2. Denney, Reuel and Mary Lea Meyersohn. "A Preliminary Bibliography on Leisure." American Journal of Sociology. Vol. LXII, No. 6 (May, 1957).

   A general list of works dealing with leisure. Too broad to be of much immediate value to the Commission.

3. National Recreation Association. "A Guide to Books on Recreation--An Annotated List of over 850 Selected Titles," Recreation. Vol. L, No. 7, Part II (September, 1957).

   Most of the items listed would not be relevant to the work of the Commission.

4. Sargent, Frederic O. "A Scenery Classification System," Journal of Soil and Water Conservation, Vol. 21, No. 1 (Jan.-Feb., 1966), pp. 26-28.

   Suggests a more objective method of comparing scenic sites or resources. The suggestion is interesting and potentially valuable because it might provide a way to establish priorities for acquiring scenic sites not now publicly owned.

II. New England as a Whole

5. Bidwell, Bennett E. The Tourist Industry in New England. The Babson Institute. Babson Park, Mass., 1955. 141 pp (typed) (NA)

   A general survey of the tourist business that relied upon other published studies.

6. Committee of New England, National Planning Association. The Economic State of New England. New Haven: Yale University Press, 1954. Chapter 6, New England's Vacation Business," pp. 223-251.

   The chapter discusses the importance of the vacation business to New England, the vacation attractions, the characteristics of vacationers who come to New England, and some problems of the industry. It is basically a survey of all reports and studies then available with a recommended program for strengthening the industry.

7. DeVoto, Bernard. "Tourist Trade in New England," Harpers, Vol. 211. (October, 1955) pp. 12-13 ff.

   A warning to the New England states to plan for orderly growth of tourist and recreation facilities to prevent "mass vulgarization" that would make New England much less attractive.

8. Federal Reserve Bank of Boston. New England's Tourist Industry in 1970. Research Report--1970 Projection No. 17. Boston, December, 1959. 14 pp.

   The report stresses the importance to New England of the tourist business, and that New England has the potential for rapid growth of this business if it devotes sufficient effort toward improving its attractiveness relative to other competing resort areas.

9. New England Council. Survey of New England Travelers (Interviews in 1963). Supported by a grant from Eastern Airlines. (Not obtained)

10. New England Council, Recreational Development Committee. New England Vacation Business Inventory: Part I, Overnight Accomodations for New England Vacation Visitors. Boston, 1948. (NA)

    A statistical summary of reports obtained from each state.

11. New England-New York Inter-Agency Committee. The Resources of the New England-New York Region. New York, N.Y. (1954). (NA)

A description of the resources for each of 28 river basins together with suggested plans for the conservation and best use of the resources.

12. Sissener, Jan U. The Ski Lift Business in New England. Report No. 11, Federal Reserve Bank of Boston. 1960.

    A study of the financial aspects of ski lift operators based on a survey of 14 of the 38 major ski areas in New England. The earnings record was poor and the ratio of operating income to investment was low (1 to 4).

13. U.S. Council of Economic Advisers, Committee on the New England Economy. The New England Economy. Washington, July, 1951. Chapter XVII, "Recreation."

    Discusses in general terms the importance of the industry to New England and the region's assets for recreation.

14. U.S. Department of Agriculture, Economic Research Service. Rural Recreation Enterprises in New England. Agricultural Economic Research Report No. 56. Washington, May 1964. 27 pp.

    Based on a survey of 32 rural recreation enterprises, the report provides information concerning investment, operating costs and returns, and managerial problems.

15. U.S. Department of Commerce, Area Redevelopment Administration. The Skier Market in Northeast North America. Washington, Feb. 1965. (Prepared by Sno-Engineering, Inc.).

    Using information obtained by interviewing skiers, the report estimates the size of the ski market, its recent growth, and gives certain characteristics of skiers--their skiing habits, preferences, and residence. The information was intended to help prospective investors decide whether or not to invest in the ski business.

16. U.S. Outdoor Recreation Resources Review Commission. Potential New Sites for Outdoor Recreation in the Northeast. Study Report 8. Washington, 1962.

    A study of the future needs for natural resource recreation areas near the densely populated sections of the Northeast, of the availability of potential recreation sites, and of the existing administrative and legal procedures for making resources available for public recreational uses.

17. The Federal Reserve Bank of Boston has published a number of statistical reports on the vacation business in New England. The only reports currently being published are those on registrations at boys' and girls' camps and at various tourist attractions. The Bank has recently discontinued its Vacation Business Index that gave data on occupancy and sometimes advance reservations. The bank has also prepared several statistical reports on the state of origin of guests at New England loding places.

18. The Bureau of Outdoor Recreation, U.S. Department of Interior, is preparing a Nationwide Recreation Plan which will, of course, include information and proposals for the New England region.

19. The U.S. Department of Interior is going to prepare a report on recreation in the Connecticut River Basin.

20. The Corps of Engineers, U.S. Department of the Army, in cooperation with the U.S. Department of Interior, will sponsor a study of the economic impact of the vacation and tourist business in the Connecticut River Basin.

21. Addendum: A Report on Travel Activity in New England, prepared by Eastern Airlines for The New England Council for Economic Research and Development. (No publishing date is given; the report, however, uses 1963 data).

Mr. Pfister received a copy of this report after he had submitted Task Force Report I. For this reason there is no accompanying annotation.

III. New England, By States

A. Connecticut

22. Connecticut Department of Agriculture and Natural Resources. Connecticut Comprehensive Statewide Outdoor Recreation Plan 1965-1970. (No date) 91 pp.

Gives general description of the state; the agencies responsible for recreation; assesses use made of available facilities; and the facilities, public and private, that are available. The report considers the needs and the problems; it recommends acquisitions and construction costing $68 million over the next five years.

23. Connecticut State Development Commission. Connecticut's Vacation Business. Prepared by Charles E. Lee and Charles E. Hills. Hartford, 1956. 60 pp. (mimeographed) (NA)

Contains a description of six representative vacation towns, an estimate of receipts by establishments serving vacationers in Connecticut an index for measuring the state's vacation market, and opinions obtained concerning Connecticut as a vacation land. Based on interviews of guests at lodging

24. ____________________. Survey of Out-of-State Motorists in Connecticut. Prepared by Charles E. Lee. Hartford, 1956. 39 pp. (NA)

A report on the information obtained in interviewing motorists. It presents data concerning volume of out-of-state traffic, the composition of the passenger-car groups, expenditures, travel habits, lodging places, incomes, and opinions of Connecticut as a vacation land.

25. ____________________. Survey of Vacation Lodging Accomodations in Connecticut Conducted in Summer of 1960. Hartford, October, 1960.

An attempt to obtain a complete inventory of lodging places in Connecticut.

26. McKain, Walter C. Jr., and William H. Groff. The Social and Economic Effects of the Connecticut Turnpike on Eastern Connecticut Recreation. College of Agriculture, University of Connecticut. Storrs, Conn., 1960. (NA) (Not examined)

27. ____________________. Tourist Facilities Along the Connecticut Turnpike. College of Agriculture, University of Connecticut. Storrs, Conn., 1962. (NA) (Not Examined)

28. Whyte, William H. Connecticut's Natural Resources - A Proposal for Action. Hartford, June, 1962. 32 pp.

A proposal to spend $50 million to preserve and develop Connecticut's natural resources. Half the sum would go to towns and cities as matching grants for acquisition of open spaces for recreational purposes; the rest would go for coordinated effort by state agencies.

29. The Connecticut Interregional Planning Program is preparing reports on information obtained in several surveys. These reports are scheduled to be completed sometime during the coming summer.

B. Maine

30. International Design and Development Corporation. Winter Spring Summer Fall, Flagstaff. Boston, 1966. 32 pp.

A plan for a comprehensive, year-round recreational resort in an area that is now completely undeveloped. The site contains a large lake and mountains with good potential for skiing. The plan, which provides for privately owned homes as well as the usual resort facilities, provides for development so as to maintain the natural beauty of the area; the facilities and most of the land in the development will be privately owned. (A background study estimates the local economic impact of the proposed project.).

31. Maine Department of Economic Development. Recreation Property Inventory, Maine, 1959. Augusta, July, 1960. 39 pp.

A report on the location, assessed value, and ownership of commercial lodgings (including boys' and girls' camps), seasonal residences, eating places, and other amusement and recreation facilities.

32. Maine State Park Commission. A Recreation Plan for Maine. Prepared in cooperation with the National Park Service. April, 1956. 56 pp. (NA)

A planning report that recommends a program for meeting the near-term and long-term demands for recreational areas and facilities in Maine. It recommends improving existing state and federal parks, acquiring and developing 17 additional state parks, development of a program for preserving the outstanding natural and cultural features of the State, and establishment of an inter-agency recreation group to coordinate planning for recreation. It suggests phases or steps in carrying out recommendations.

33. Raphaelson, Arnold H., Tadeusz A. Siedlik, and John D. Coupe. A Study of the Vacation Industry in Maine. School of Business Administration, University of Maine, Orono, Maine, 1961. (A report prepared under the Small Business Management Research Grant Program of the Small Business Administration).

A rather comprehensive survey of the vacation business that presents data concerning characteristics of vacationers, characteristics of the primary businesses that serve vacationers, trends in the business, and the local economic impact of the business.

34. Stewart, B. E. Recreational Use of Private Land in a Portion of Eastern Maine. Miscellaneous Publication No. 648, Maine Agricultural Experiment Station. Orono, 1963. 47 pp. (Not obtained)

C. Massachusetts

35. Alexander, L. M. "The Impact of Tourism on the Economy of Cape Cod, Mass.," Economic Geography, vol. 29, No. 4 (Oct. 1953), pp. 320-326. (NA)

Concerned primarily with historical changes in the economy of Cape Cod, suggesting that the rise in tourist business revived the local economy and that other localities in New England could also revive their economies by developing the tourist business.

36. Foster, John H. The Private Outdoor Recreation Industry in Berkshire, Hampshire, and Hampden Counties, Massachusetts, Parts I and II. Publication 393, Cooperative Extension Service and Experiment Station, College of Agriculture, University of Massachusetts, March, 1963. (NA) (Not examined)

37. Massachusetts Department of Commerce. The Massachusetts Vacation-Travel Industry. Boston (no date). (Not examined)

38. ____________________. 1962 Massachusetts Vacation-Travel Survey. Boston, August, 1963. 34 pp. (NA)

A statistical summary of responses to a mail questionnaire sent to a random sample of persons writing to the Department of Commerce for information. Questions were asked concerning reasons for coming to Massachusetts, size of party, days spent in the state, mode of transportation used, accomodations used, and amount spent. The Department strongly recommended that the state increase its promotional efforts.

39. ____________________. 1957 Vacation-Travel Survey. Boston, Mass., April 28, 1958. 29 pp. (mimeographed) (NA) Similar to the preceding study.

40. Massachusetts Development and Industrial Commission. Survey of Expenditures--Habits of 1949 Summer Vacationers in Massachusetts. Compiled by Lenox E. Bigelow. Boston, August, 1950. 19 pp. (Mimeographed) (NA)

An earlier survey of vacationers using a mail questionnaire and asking questions similar to those used in the 1957 and 1962 surveys.

41. Massachusetts Department of Natural Resources. Preliminary Report on an Inventory and Plan for Development of the Natural Resources of the Commonwealth, Part I. Prepared by Edwards, Kelcey and Beck, Consultants. Boston, June, 1956. 206 pp. (NA)

Contains an inventory of the natural resources and related recreational features, an evaluation of their current condition and uses, and a preliminary recommendation for future action. The report calls for coordinated planning (by all agencies concerned with the state's natural resources) to prepare an energetic program of natural resource development and of bidding for vacation-travel business. The consultants felt the state had lagged badly on these matters.

42. ____________________. An Inventory and Plan for Development of the Natural Resources of Massachusetts, Part II, "Public Outdoor Recreation." Prepared by Edwards, Kelcey, and Beck, Consultants. Boston, January, 1958. 174 pp. (NA)

An investigation of the outdoor recreation needs of Massachusetts, facilities currently available to meet the needs, and plans for expanding outdoor recrea ation areas and facilities to meet the current and expected future needs. Contains detailed recommendations for acquiring and developing sites, a priority schedule, and estimated costs.

43. Massachusetts Department of Public Works, Bureau of Transportation, Planning and Development. Cape Cod Tourist Study (1963). Boston, 1965. (Not examined)

44. Technical Planning Associates. Vacation-Recreation-Tourism in Northern Berkshires--1962-63. Prepared under Technical Assistance Program, Area Redevelopment Administration. New Haven, Conn.

Contains many suggestions for making the Northern Berkshires more attractive to tourists. The report suggests numerous specific projects and gives cost estimates, but it fails to indicate priorities--to say what should be done immediately and what should be done over a longer period.

45. Urban Survey Corporation. Measurement of Tourism in Massachusetts, Supplements I-VII and Appendices. Boston, December, 1965. 133 pp. plus appendices.

A discussion of indicators of the vacation-travel business and a method of estimating expenditures by tourists in Massachusetts that relies heavily upon the National Passenger Transportation Survey of the U.S. Bureau of the Census. The report makes recommendations for gathering data to improve the estimation of tourist expenditures and their impact. (A separate report, called the study report, gives a summary of the findings and recommendations).

46. Western Massachusetts Electric Co., The Hartford Electric Light Co., and The Connecticut Light and Power Co., An Outdoor Recreation Proposal Prepared with the cooperation of the Mass. Department of Natural Resources. Jan., 1966. (A pamphlet summary of a larger report).

A comprehensive plan for developing outdoor recreational facilities in conjunction with a planned hydroelectric project for pumped storage on Northfield Mountain. The electric companies would invest a substantial sum in the recreation facilities in cooperation with other public agencies.

D. New Hampshire

47. New Hampshire State Department of Resources and Economic Development. Vacation Travel Business in New Hampshire - A Survey and Analysis. A Small Business Management Research Report prepared for the Small Business Administration. Concord, 1962.

This report is basically an impact study; it contains an inventory of lodging places, the employment patterns of lodging places, the employment patterns of lodging places. and an estimate of expenditures by vacationers together with the income thereby originated in New Hampshire.

48. New Hampshire State Planning and Development Commission. The Great Bay Plan. Concord, 1945. (Not examined)

49. __________________. Land Use Plan, Hopkington-Everett Flood Control Reservoir. Concord, March, 1962. 32 pp.

A plan for land use around the resevoir that coordinates various proposals of government agencies and private interests.

50. __________________. New Hampshire Initial Town Property Survey Report, 1957. Concord, January, 1959. (See the note under the title Recreation Property in New Hampshire, 1945).

51. __________________. A Plan for the Development of the State Property at Pawtuckaway Lake. Concord, August, 1958. 26 pp.

A proposal for the development of public and private recreational potential of the Pawtuckaway Lake. A later report on the same lake is A Plan for the Development of a State Park at Pawtuckaway Lake, May, 1962.

52. __________________. Public Recreation in New Hampshire. Concord, 1943.

An early study that defined and located the need for additional or expanded public recreation areas in the state and presented a comprehensive plan for achieving the needs.

53. __________________. Recreation Property in New Hampshire, 1945.

A listing of the value of recreation propety by categories and by towns. Data were obtained from town tax lists. Similar data were collected in 1952 and 1957.

54. __________________. Recreation Property in New Hampshire, 1945-52. (Same comment as for preceding entry).

55. ______________________. A Study of the Lake Winnipesaukee Shore Line. Concord, 1948.

An extensive analysis of the use and ownership of the lake front with recommended policies to govern the future use and development of the lake front.

56. ____________________. A Suggested Program for the Redevelopment of the Weirs. Concord, 1947.

Suggested improvements in the congested waterfront area on Lake Winnipesaukee.

57. ____________________. Vacation Business in New Hampshire. Concord, 1949. 40 pp. (NA)

Presents information obtained from operators of lodging places concerning characteristics of lodging places and their receipts from vacationers. The report estimates total spending by vacationers in 1946.

58. ___________________. Winter Facilities Development Committee Report. Concord, April, 1961. 59 pp.

Analyzes the relatively slow growth of the New Hampshire ski industry and makes numerous recommendations to accelerate the growth.

59. State of New Hampshire. Land, Water, Recreation. New Hampshire State Planning Project. Concord.

A series of reports concerning the state's resources and development with emphasis on long-range planning for the conservation, preservation, and optimum use of natural and cultural resources. The relevant reports are listed individually below.

Report No. 1, "Baker River Watershed." March, 1964. 51 pp.

A study of the economy, resources, and development potential of the Baker River Watershed in New Hampshire.

Report No. 2, "Forest Management for Better Living in New Hampshire," Concord, June, 1964. 43 pp.

A study of the forest resources of the state with emphasis on advantages of following good forest management.

Report No. 4, "New Hampshire Water Bodies and Public Access Points," Concord, August, 1964. approx. 130 pp.

A survey of all public water bodies of 10 acres or more, giving the facilities available and points of public access. Contains a listing and maps showing all bodies of water with facilities indicated.

Report No. 5, "Travel Habits of the Motorist in New Hampshire, Part I, Summer." Concord, 1964, 84 pp.

Presents information concerning characteristics of motorists. Information was obtained from questionnaires distributed at stations along highways where motorists were stopped at certain times during summer of 1964.

Report No. 6, "Northeast Skier Market," Concord, November, 1964. 48 pp.

A follow up by mail questionnaire of those who responded to an earlier survey. This follow up was to obtain new information, to determine the number of drop outs, and changes in skiing habits.

Report No. 7, "The Privately-Owned Campgrounds of New Hampshire," Concord, March, 1965. 62 pp.

A description based on data obtained in a 1963 survey of camp managers and campers. The report sought to explain why people invest in private campgrounds and why people visit them.

Report No. 8, "Travel Habits of the Motorist in New Hampshire, Part II, Winter," Concord, April, 1965. 62 pp.

A report on the characteristics of skiers in 1964, based on questionnaires.

Report No. 9, "Economic Impact of Recreation, Vacation, and Travel on New Hampshire," Concord, July, 1965. 92 pp.

An updating of the estimates of tourist expenditures that were presented in Vacation Travel Business in New Hampshire -- A Survey and Analysis (1962).

Report No. 10, "The Water Resources of New Hampshire," Concord, September, 1965. 216 pp.

This report identifies water resource problems such as areas of potential shortage of supply and means of increasing the supply; flood control; watershed management; fish and wildlife management; pollution; and provision for water recreation. It reviews the legislative machinery available to work on these problems and makes planning recommendations.

60. White, David L. New Hampshire's 22 Million Dollar Sportsmen. Technical Circular No. 11-a, Management and Research Division, New Hampshire Fish and Game Department. Concord, 1955. (Technical Circular 11 gives detailed description of techniques employed in 11-a). (Not examined)

E. Rhode Island

61. Rhode Island Development Council, Research Division, Preliminary Report on A Measurement of Rhode Island's Recreation Industry, . November, 1952. 7 pp. (mimeographed). (NA)

An attempt to estimate the expenditures of vacationers on the basis of information obtained by questionnaires sent to operators of lodging places.

62. Tanner, Earl C., and others. An Introduction to the Economy of Rhode Island. Rhode Island Development Council. Providence, 1953 (NA)

A general survey of the state's economy with a short chapter (pp. 246-251) on the recreation industry. The study suggests that R. I. could and should have a much larger volume of the tourist business.

63. In connection with the Rhode Island Statewide Comprehensive Transportation and Land Use Planning Program, there have been some recent studies of the origin and destination of visitors to certain recreation facilities. As yet, these reports have not been obtained.

64. Addendum: "Study of Tourism in the State of Rhode Island, including a special report on Block Island," Rhode Island Development Council, Technical Assistance Project prepared under Area Redevelopment Contract # C-68-65.

Mr. Pfister received a reference to this study after he had submitted Task Force Report I. For this reason there is no accompanying annotation.

F. Vermont

65. Beattie, Byron. Development of Winger Sports Facilities on the Green Mountain National Forest, Region Seven. Sept. 23, 1952. (Typed) (NA)

An analysis to determine whether to permit additional development of ski facilities in the Green Mountain National Forrest.

66. Capelle, Russell B., Jr. Industrial Location Theory Applied to Vermont Ski Industry. Senior Thesis, Dartmouth College, Geography Dept. May 8, 1965. (NA)

Considers the factors that are important for ski areas and examines numerous Vermont ski areas to see how they measure up in terms of these factors.

67. Dorner, Peter, and Ernest M. Gould, Jr. An Economic Analysis of the Ski Industry in Vermont. A paper for the Land Use and Conservation Seminar, Harvard University. September, 1957. 47 pp. (typed) (NA)

A study of the ski industry in the state to determine whether there was at that time need for additional ski facilities.

68. Fiske, Lee C., Jr. Ski Area Development and Financing in Vermont--A Banker's Analysis. Howard National Bank and Trust Co. Burlington, Vermont, June, 1958. 135 pp. (NA)

Develops information of interest to banks as lenders to ski area developers.

69. Gebelein, Herbert and Philip Willis. The Economic Significance and Impact of Primary Recreational Facilities on Selected Areas in Vermont. Norwich University, 1964. 63 pp. (mimeographed) (NA)

An attempt to determine the economic impact of recreation expenditures on five selected towns. A shorter preliminary report carried the title A Study and Evaluation of the Impact of Income Generated by Public and Private Tourist Facilities.

70. Moore, Dorothy. Recreation Site Potential in Vermont. Technical Planning Associates, Stowe. September, 1964. 45 pp.

Presents views as to the most promising potential sites for various recreation activities in Vermont.

71. Thompson, John M. and others. The Tourist and Recreation Industry in Vermont. Small Business Management Research Report prepared for the Small Business Administration. Montpelier, Vermont. 1963.

A survey of the tourist business with primary emphasis upon providing a more accurate estimate of the dollar volume of the business.

72. Vermont Central Planning Office. Interim Outdoor Recreation Plan for the State of Vermont. Comprehensive State Planning Project. August, 1965 (Revised October 15, 1965). 120 pp.

A report that provides a planning framework designed to meet the demands for recreation by residents and visitors. It is a comprehensive summary of the geography of the state, the agencies responsible for outdoor recreation, the supply and demand for outdoor recreation facilities, special problems faced by the state, and a suggested program of action for acquiring sites and constructing facilities with short run and long run objectives in mind. The report will be revised in the summer of 1966.

73. ____________________. Report of Governor's Panel on Scenery and Historic Sites. October, 1963. 62 pp.

Survey of existing historic and scenic sites maintained by the State recommendation for new sites. Emphasizes beautification to make Vermont more attractive to visitors.

74. ____________________. Vermont Scenery Preservation. February, 1966. 73 pp.

A report concerned with preserving and enhancing roadside scenery in Vermont.

75. Vermont Department of Natural Resources. Millions for Vermont. August, 1944. 63 pp. (NA)

An early attempt to estimate the volume of tourist spending in Vermont for the years 1934-1943.

76. Vermont Development Commission. Economic Aspects of Recreational Development in Stowe, Vermont. September, 1948. 10 pp. (mimeographed) (NA)

Estimates amount of money spent in Stowe by skiers at lodging places and at ski facilities.

77. ____________. Habits and Expenditures of the Vermont Vacationist. Issued at irregular intervals, 1949-1961. (Most issues not available)
A series of reports, some with slightly different titles, giving the results of mail questionnaires sent to a sample of persons writing the Commission for information in response to advertisements.

78. __________________. 1949 Vacation Business Survey of Cabins, Hotels and Tourist Homes. Montpelier, 1950. (mimeographed) (Not obtained)

79. __________________. Tourist Dollars Make Markets for Vermont Farm Products. Montpelier, 1950. (mimeographed) (NA)

A survey of the distribution of operating expenditures of Vermont Hotels, Restaurants, Cabins and Tourist Homes and Guest Establishments to estimate the volume of goods purchased from Vermont producers.

80. ________________. Vermont Hotels, Tourist Homes and Cabins, Restaurants, Boys' and Girls' Camps. April, 1946. (Not obtained)

81. ________________. What Becomes of Tourist Money?. October, 1950. (mimeographed) (NA)

An attempt to trace the subsequent flow of the tourist receipts of lodging places.

82. Vermont Resources Research Center. Natural Areas in Vermont. Agricultural Experiment Station, University of Vermont. (no date)

An inventory of natural areas having current and potential uses for science and education.

83. ________________. The Outdoor Recreation Industry in Vermont. Report No. 3, Agricultural Experiment Station, University of Vermont. June, 1964. 152 pp.

An inventory of present facilities for outdoor recreation and ancillary facilities to serve those using the outdoor recreation facilities.

84. ________________. Physical, Economic, Administrative, and Planning Regions in Vermont. Report 4, Agricultural Experiment Station, University of Vermont, Burlington. June, 1964. 142 pp.

Describes different regional delineations based on physical features, population, economic factors, and administration of state government functions, and then suggests appropriate regions for administration, planning and development.

85. ________________. Trends in Land Use, 1673-1964. Report 5, Agricultural Experiment Station, University of Vermont. June, 1964. 14 pp.

Traces the changes in land use and points out the dangers in partial urbanization without the usual urban controls on land use.

86. ________________. Vermont Resources: Extent, Management, and Development Potential. Report 12, Agricultural Experiment Station, University of Vermont. December, 1964. 108 pp.

An inventory of publicly owned land and plans for future improvements, a list of the agencies responsible for managing the public lands and their policies, and a consideration of the importance of recreation in the development potential of Vermont.

TASK FORCE REPORT J

A Survey of Research on Taxation Public Finance and Investment in New England

ARNOLD H. RAPHAELSON

No comprehensive regional treatment of New England taxation public finance or public investment efforts was found in the review of existing literature for this bibliography. Most current work deals with segments of these topics--there are regional articles on specific topics, reports for certain states and areas within the region and, in a few general economic studies of New England, there were sections relating to these subjects. Therefore the entries in this bibliography are categorized into three groups by subject matter and use of materials: public finance, state and local tax impact and industrial development, and data sources.

Some of the data sources in Federal reports (see III C. in Table of Contents) are also relevant to the reports listed as regional studies of Federal relationships (I B in Table of Contents); they are listed separately because they differ in scope and the types of camparisons reported. This bibliography does not include all of the reports on these subjects. There was an attempt to secure all relevant regional studies; the other studies are recent examples of the types of reports and theses which may be found in several areas. Nearly all of the sources cited are available in the library of the Federal Reserve Bank of Boston, the Boston Public Library's business branch and at university libraries in the Boston area. These are the best sources of the older publications now out of print. Some reports, such as the more recent governmental and Federal Reserve Bank of Boston reports, are still available from their publishers. Each of the entries carries some annotation, but no separate indication of availability was made on these entries because of the general access to them in the area libraries.

The Committee on the New England Economy, in a 1951 report for the Council of Economic Advisers, included a few chapters on these topics. They called for local initiative to provide diversification of the economic base and to provide venture capital, suggesting that Korean War mobilization should not lead only to renewal of declining textile and shoe industries. These proposals have been followed; in the past 15 years, state and local development corporations have developed for these purposes. Other suggestions are to take greater advantage of Federal programs (to reduce Federal treasury net drains from the region) and to lighten taxes on business. It is difficult to assess how much greater use of Federal aid has been made since the report, but it has certainly increased. S. E. Harris, a Committee member writing separately, indicated (as have others) that state and local tax differentials are a minor cause of industrial loss in New England.

Edward K. Smith's chapters in The Economic State of New England (National Planning Association, 1954) concluded that there is little chance to change the disparities in Federal aid - Federal tax relationships and that the net loss would continue. Recent analysis suggests that this conclusion is still relevant, since Federal aid programs do tend to be income equalizing; this is not equally true for all states in the region, and it is not true of total Federal expenditures (as compared to Federal aid alone). His other conclusions require new analysis of conditions in the decade since the report was written. Some other reports on Federal relationships reach similar conclusions on the Treasury drains from New England (Harris), assess equity of Federal aid distribution (Clement), or review methods for allocating Defense contract activity in New England (Pfister, Little, and New England Business Review, March 1965). One 1947 proposal (Directive Committee on Regional Planning) is for Federal aid for initial regional planning with regional sources to be used later, a propsition substantively similar to the E. D. A. Regional Development Commission provisions. Some other reports deal with specific topics, such as education (proposing less reliance on private institutions and greater public effort, a current trend), property taxation and highway finance.

Some of the state studies are reviews of tax structures with relevant interstate comparisons (Sly and Connecticut Interregional Planning Program). In these, proposals are largely intra-state (rather than regional) in nature. Some offer perspectives on state-local relationships (Greater Boston Study Committee). Examples of these types of studies are noted.

The impact of state and local taxation on industrial development has been the subject of several studies. Wightman's survey is still in process; it will be a survey analysis of the impact upon location decisions by different types of firms. The Ellis report on a 1949 survey stressed the importance of personal considerations as a regional location influence, and the Strasma report is a comparison of local impacts within New England. Steiner's conclusion on high burdens in Massachusetts conflicts with Wickman's observations concerning the furniture industry. There are recommendations for lower taxes on business in some of these reports as there were in some noted above; compatibility with current conditions may be better determined after Wightman's work is completed.

Several case studies on the influence of public investment in industrial development organizations give perspective to state and local efforts as they vary under different circumstances. Smith (1954) concluded that regional needs for short term credit are met adequately, but there were barriers to use of long term financing. Federal Reserve Bank articles (1952, 1955) discuss current roles of industrial financing organizations. Gooding's 1963-1964 series notes the usefulness of the organizations but warns against equity problems and proposes Federal regulation of interstate competition. This series is consistent, and its findings appear relevant to current conditions. Malinowski and Kinnard report specifically on industrial parks, public and private, as development techniques of public investment or guaranteed financing.

Other recent work on public investment has centered on electric power development proposals. The U.S. Senate Committee on Public Works 1964 Hearings outline the history of Federal power proposals for Maine; since then, the Passamaquoddy project has been dormant, but the Dickey-Lincoln School (St. John River) project is promising. The Shipman report and the recent Wilkinson series compare private and public power development proposals. The conclusions of each hinge upon benefit: cost estimates that vary with interest rates and development views; new reports are issued as these conditions change, but all call for public or private integration of power planning to meet regional needs.

Other sources on public finance and development are useful for the data rather than the analysis they report. The ones listed are regional (as opposed to Federal census and others) or are private, in the Tax Foundation series. In addition to these, the Federal Reserve Bank of Boston in 1959 published a series of 1970 projections studies; listed here are those related to investment and public activity generally. Other 1970 projections are in the 1965 Mushkin series on state and local public finance topics; these contain regional breakdowns and interstate comparisons.

The final group listed is a selection of national reports which are relevant to these topics and which permit regional analysis. The Advisory Commission on Intergovernmental Relations reports on taxation are valuable for this purpose; others, not listed, deal with specific topics rather than tax structures generally. The Labovitz, Mushkin and U.S. Senate Subcommittee on Intergovernmental Relations reports contain estimates of the impact of Federal expenditures and, except for the latter, estimate the regional tax impact as well. The Tax Foundation study evaluates state budget provisions and state uses of Federal grants. These reports provide an important basis for planning and projecting the state and local tax effects of new programs for regional development.

It is clear from this review that there is a need for a comprehensive regional study of public finance. There are gaps in the knowledge of the state and local tax structures and their real impact upon industrial development, but some of these gaps are being filled. The lack of information on taxation and state and local expenditures may inhibit the establishment of new regional programs and may currently inhibit the best use of existing programs of Federal aid. This type of analysis is necessary to assess the nature of state and local participation that could be expected in regional development efforts.

SECTION 2 BIBLIOGRAPHY

I. Public Finance

A. Regional Studies in Public Finance

1. Committee on the New England Economy, The New England Economy. A Report for the Council of Economic Advisers transmitted to the President. Washington: Government Printing Office, July 1951.

   This general study of the regional economy has several chapters related to public finance, including one on the impact of the Korean War mobilization. Discussions of industrial development lead to proposals calling for state and local industrial "self analysis" to diversify economic bases, to exploit available resources and to increase provisions for venture capital. Federal, state and private cooperation in power development is proposed. The report cites net drains of funds from the region to the Federal Treasury, and it urges revisions on Federal tax policies (to reduce business burdens) and greater exploitation of Federal aid programs by the states (especially Connecticut) and localities. The report also indicates that the tax structure is somewhat detrimental to industrial development in New England, with state tax burdens lighter and local tax burdens heavier than those in competing states. Recommendations include proposals to lighten state and local property and business taxes but to have greater public expenditures on higher education, with less dependence upon private institutions.

2. Harris, Seymour E., The Economics of New England, Cambridge, Massachusetts: Harvard University Press, 1952, Chapters 10, 19 and 20. See also by the same author, "New England's Decline in the American Economy," Harvard Business Review, Spring, 1947, vol. XXV, no. 3, pp. 348-371, esp. pp. 363-366.

   In analysis of 1948-1950 data, this study concludes 1) that state and local tax differentials constitute a minor cause of loss of industry from New England; 2) that below average net investment in New England (1939-1947), except in New Hampshire, is largely the result of the region being an older economy which requires less new investment per worker than newly developing areas; and 3) despite intra-regional differences, Federal fiscal activity causes a net regional drain on the New England economy. Fiscal positions of the states are noted in tables; there is a separate chapter (20) on Massachusetts.

3. Sly, John F., "State and Local Government in New England," in Wright, John K., ed., New England's Prospect: 1933. New York: American Geographic Society, 1933, pp. 415-430.

Primarily on government structure, this report also discusses assessed valuations, revenue receipts and expenditures of state governments in New England in 1929.

4. Smith, Edward K., "New England's Financial Relations with the Federal Government," in National Planning Association, The Economic State of New England, New Haven: Yale University Press, 1954, pp. 593-623. See also Smith, Edward K., Interstate Comparisons of State and Local Tax Burdens and Federal Aid, 1941 and 1949, Staff Memorandum #8 (Boston: The Committee of New England of the National Planning Association, August 1952), limited availability from Federal Reserve Bank of Boston.

   The study compares the relevance of regional and national goals in Federal revenues and expenditures and compares the economic ability of the States with the Federal aid they receive, concluding that there is little chance to change disparities because attempting to increase Federal aid also implies greater spending of state funds. The study contains breakdowns of sources of Federal revenues from New England (1940-1952) and programs of Federal aid in New England (1934-1951) and concludes that the region's net earnings in the private sector may not offset losses through Federal transactions. In the study paper, indexes of state and local tax effort in the New England states are compared with those for several other states: the materials on Federal aids are similar in both of these papers.

5. Smith, Edward K., "State and Local Taxation and Expenditures in New England," in National Planning Association, The Economic State of New England, New Haven: Yale University Press, 1954, pp. 625-673. See also Staff Memorandum #8 by the same author, cited above.

   This study describes patterns of state and local tax and expenditure programs (1939-1950) in New England and several competing states; included are tax burden relationships to economic ability, breakdown by programs and by level of government, references to Federal aid, and a separate description for each of the New England states. Appendices list major tax measures, rates and revenues in 1951.

B. Region Studies on Federal Relationships

6. Clement, M. O. Federal Grant Programs in New England, Research Report No. 15. Federal Reserve Bank of Boston, 1961.

   This report describes a scheme for assessing fiscal equity (comparing grants and tax revenues to resources and needs) and a classification of Federal grants by apportionment method. On these bases the allocation of grants by state, 1953-1958, leads to conclusions on equity by program and by state.

7. Directive Committee On Regional Planning. The Case For Regional Planning With Special Reference To New England. New Haven: Yale University Press, 1947.

This study includes a description of the types and number of government units in New England in 1941 and proposes regional planning to coordinate them. Use of Federal funds for regional planning is proposed for the outset, with regional sources to be used in the long run.

8. Federal Reserve Bank of Boston, "New England and the Impact of Defense Orders," in New England Business Review, March 1965, pp. 8-15.

This study describes defense prime contracts (and estimated secondary contracts) by industry in New England in 1960-1964, relating changes in industrial trends to defense orders in this and the 1954-1960 period.

9. Harris, Seymour E., "Taxes and Treasury Disbursements, Regional and State Differentials, 1934-1954," in Harris, Seymour E., New England Textiles and the New England Economy. Conference of New England Governors, 1956.

This is an analysis of state and regional incidence of Federal taxation and of selected Federal disbursements in the period indicated. It concludes that the richer states in New England receive back a lower proportion of their Federal tax contributions as Federal expenditures than do other regions.

10. Little, Arthur D. Inc. Projective Economic Studies of New England, 1964.

Appendix H describes past trends and, on bases of these trends and limiting assumptions, projects N. E. values of Military prime costs awards in N. E. to 2020.

11. Pfister, Richard L. Military Expenditures In New England, Research Report No. 14. Federal Reserve Bank of Boston, 1961.

This report constructs two allocator formulas to determine the impact of primary and secondary military expenditures in New England and estimates the regional share of these expenditures by program, category of expenditure (industry) and by state in 1954 and 1958. Emphasis is upon the allocation methods.

12. Shanley, Robert A., ed., Intergovernmental Challenges in New England, Amherst, Mass.: Bureau of Government Research, University of Massachusetts, 1965.

This is a report of the proceedings of the 1964 New England Conference on State-Local Relations on several topics: financing transportation, interstat competition for industry, property tax reform, use of districts in meeting metropolitan problems, state offices for local affairs and investment of idle cash balances. Participants in the panels expressed New England regional views, used state and local examples, and commented on reports of the Advisory Commission on Intergovernmental Relations. Also included are proposals for regional planning programs and for cooperation in higher education and a general review by the editor of possible Federal-state cooperation in New England.

C. Regional Studies of Specific Programs

13. Bishop, George A., "State Aid to Local Road Programs," in New England Business Review, April, 1964, pp. 2-6. See also technical supplement by same author, Revising State Aids to Local Highways, Boston: Federal Reserve Bank of Boston, 1964.

This study relates 1962 local expenditures for roads to state aids and proposes revision of formulas for aid to reflect better measures of need and local tax sources. Supplement describes formulas in New England states, extent of variation in local tax rates for highways and schools in Massachusetts and Connecticut and other highway expenditures elements.

14. Doody, Francis S. The Immediate Economic Impact of Higher Education In New England. Boston University College of Business Administration, 1961.

This report compares revenues and expenditures of colleges and universitie in New England by state, 1949-1950 and 1957-1958. There is no separation of public and private institutions, but revenue sources reflect Federal, state and local expenditures for higher education.

15. Federal Reserve Bank of Boston, "The Property Tax and Local Spending-- A Need for Balance," in New England Business Review, Dec., 1962, pp. 1-5. See also Bishop, George A., Notes and Statistical Materials on Equalized Property Tax Rates in New England, Boston: Federal Reserve Bank of Boston, 1962, a supplement to this article.

This paper relates equalized property tax rates in five New England states (Vermont is excepted) with family income levels, proportions of commercial and industrial property, tax resources and population size. Conclusion that poorer towns (especially those losing industry) have high effective tax rates and low per capita expenditures suggests greater emphasis upon equalized property values as a basis for distribution of state aid to localities.

16. Federal Reserve Bank of Boston, "State Aid for Education in New England," in New England Business Review, September, 1963, pp. 1-4.

This report compares 1961 state aid provisions for education among New England states. It concludes that regional state aid levels are low, and the "foundation" program in some states replaces local property taxation with little incentive effect.

17. New England Council. The Economic Value of Educational Institutions To New England. Boston University College of Business Administration, 1951.

This report includes tables (pp. 24, 25) on public and private institutions and government sources of revenue in 1947-1948.

D. Selected State Studies

18. Buehler, Alfred G., Tax Study, State of Connecticut, Hartford: Commission of Finance and Control, 1963.

Relating primarily to Connecticut, this study contains sections relating tax burdens of the states and comparing Connecticut with five other states (pp. 79-98 and Appendices). Emphasis upon resistance to change and upon interstate tax competition reinforce conservative outlook.

19. Connecticut Interregional Planning Program, Public Finance, Technical Report 157, Hartford: Connecticut Development Commission, Nov. 1963.

The subtitle of this study reflects its scope: "An Analysis of Revenues, Expenditures, and Debt by Federal, State and Local Governments in Connecticut, and Their Relationship to Regional Planning." As in other studies under this program, the term "regional" refers to intrastate planning areas; the emphasis is upon public finance issues arising out of rapid urbanization. Valuable comparisons of the impacts of different levels of government in the economy, the tax structure and public services lead to proposals for models of shifts in government responsibilities and changes in the tax structure. Proposals for further research carry regional implications, especially in similar areas in southern New England.

20. Greater Boston Study Committee, Financing Local Government in the 1960's. Boston: Associate Center of the Committee for Economic Development, May 1961.

This report, subtitled "A Policy Statement on Fiscal Reform in Massachusetts," compares Massachusetts shares of state and local expenditures to those in other states and compares the burdens of Boston with those of other localities in the state. It concludes that state support of services should be greater and that state aid formulae should be revised to relieve local property taxation. The recommendation is for a 3 percent state sales tax or a broader income tax to get revenue for these purposes.

21. National Resources Board. State Planning In New Hampshire. Concord, New Hampshire, 1935.

This report places historical perspective on public works in New Hampshire, 1921-1934, by state and local governments, and advance planning of a public works program for 1935-1944. This also describes revenues and expenditures by function in New Hampshire, 1924-1934.

22. Sly, John F., Public Revenues and the Economy of Maine, June, 1960; The General Property Tax in Maine, Nov., 1960; and The State Tax Structure in Maine, March, 1961, Augusta: Legislative Research Committee. Three reports to the Committee as a state tax study.

These reports are parts of a tax study in the areas indicated by their titles; the first report is largely historical but it contains a section of comparisons among the New England States (pp. 51-55). Topics in the second report are primarily intrastate, though school costs in New England are compared; in the report on tax structure. Maine revenue sources are compared with other New England states. The conclusions are all intrastate in character and reflect estimates of political factors.

23. Preston, J. Stanley, Jr., The Economic Feasibility of the Personal Income Tax for Maine. Orono, Maine: University of Maine, 1964.

This study describes the history of income tax proposals in Maine. It compares the 1958 income distribution in Maine to New York and Vermont to assess the prospective impact of an income tax in Maine to the systems in those states. The conclusion is that Maine's lower income and skewed distribution do not detract from the use of this tax as a productive, equitable source of revenue.

24. Tanner, Earl C. An Introduction To The Economy of Rhode Island. Rhode Island Development Council, 1953.

Chapter 6 describes briefly trends and sources of credit and capital in Rhode Island. Chapter 7 describes payroll and property taxation and includes a comparative discussion of 1951 state corporate income taxation.

25. Terner, Ian Donald, The Economic Impact of a Military Installation on the Surrounding Area: A Case Study of Fort Devens and Ayer, Massachusetts, Boston: Federal Reserve Bank of Boston, 1965. Research Report No. 30. See also New England Business Review, Oct., 1965, pp. 9-13,

on the same subject and based on this report.

This study attempts to describe the impact of a Federal installation and to quantify the multiplier effects of changes in such Federal activity. As a case study, its relevance to regional analysis is limited to similarity of conditions in other areas. Conclusions on the relatively low value of the multiplier and on the factors involved in sales and commuter: resident relationships are likely to be true in similar communities and may be valuable as policy guides for these areas.

II. State and Local Tax Impact and Industrial Development

A. Tax Impact on Economic Development

26. Ellis, George H., "Why New Manufacturing Establishments Located in New England: August 1945 to June 1948," in Monthly Review, Federal Reserve Bank of Boston, April 1949, vol. 31. no. 4, pp. 1-12.

This article reports on a survey of 106 firms and includes discussion of location procedures and decisions and factors affecting regional, community and individual decisions. Characteristics of New England (market, labor, state government, power and fuel costs) are noted as location influences: use of old buildings and the need for new ones are discussed. Conclusions indicated great importance of personal considerations as most new industry developed from existing manufacturing in New England.

27. Steiner, George A. "The Tax System And Industrial Development," University of Illinois Business Research Bulletin No. 57, March, 1938.

Constructs indexes of industrial development, general tax burden and tax burdens on corporations in nine states, including Massachusetts, for the period 1921 through 1935, concludes that Massachusetts tax burden on corporations in this period was less than in several other states.

28. Strasmra, John D. State And Local Taxation of Industry, Research Report No. 4. Federal Reserve Bank of Boston, 1959.

This report describes the relationship of taxes on industry to investment and industrial location. It compares the tax impact on two sample corporations in 30 cities in Massachusetts, Rhode Island, Connecticut and four other states in 1950, and it includes a report on a survey of firms and a comparison of the impact of a tax rise on firms.

29. Wickman, Kenneth Paul. Economic Aspects of the New England Furniture Industry, Research Report No. 24. Federal Reserve Bank of Boston, 1963.

This study includes a discussion of the tax burden on the New England manufacturer and concludes that high state and local taxes inhibit location of furniture plants in New England.

30. Wightman, James W., The Impact of State and Local Taxation of Industry on Redevelopment Areas, a paper presented before a meeting of the New England Chapter of the Regional Science Association, Dec. 4, 1965, West Cambridge, Mass. Complete study in process for New England Economic Research Foundation.

This paper compares the effects of different tax measures upon location decisions of three hypothetical firms and suggests some relationships between public services and location decisions. The final study will contain analysis of a survey in 83 communities in 11 states (including the six New England states) and will contain appendix tables on tax structures as they relate to business and to investment decisions.

B. Development Corporations and Investment

31. College-Community Research Program, Brown University, The Competitive Position of the Rhode Island Economy, Part II: Investment Activity and Capital Costs in Rhode Island, 1947-1952, Providence, R. I.: Brown University, 1956.

Although this report is essentially a study of Rhode Island investment activity, it contains comparisons with other states (esp. Massachusetts and Connecticut) and considers regional differences, such as those in construction costs and investment per employee. Especially significant for New England research is the analysis of the effects of available abandoned plant space (e. g., textile) upon new investment. Other parts in this series, such as those on the chemical and metal trades industries, are valuable but less directly related to investment.

32. Federal Reserve Bank of Boston, "The Development Credit Corporation of Maine," Monthly Review, January 1951, vol. 33, no. 1, pp. 1-3.

This report describes the formation and operations of this early state effort to provide easier access on venture capital.

33. Federal Reserve Bank of Boston, "N. E. Industrial Development Corportions" in Monthly Review, June 1952, vol. 34, no. 6, pp. 1-5.

A discussion of the growth to 1952, organization, services and limits of community development programs in New England.

34. Federal Reserve Bank of Boston, The Redevelopment of Industrial New England, Annual Report of Federal Reserve Bank of Boston, 1955, pp. 10-16.

    This report includes a general discussion of regional economic development and the roles of industrial financing organizations and the efforts of regional, state and local groups.

35. Gilmore, Donald R., "The Economic Redevelopment of the Burlington, Vermont Area" in Community Economic Development Efforts: Five Case Studies, Supplementary Paper No. 18, New York: Committee for Economic Development, 1964, pp. 37-106.

    This is a case study of Burlington, Vermont, redevelopment between 1954, when the area was hit by defense cutbacks and rapid textile industry decline. Combined private and government efforts in providing services and investment played roles in this redevelopment and indicated policy steps for similar communities. The combined circumstances relating to textiles and defense efforts suggest the case history may be valuable for other New England areas.

36. Gooding, Edwin C., "New War Between the States" in New England Business Review, Federal Reserve Bank of Boston. Part I, October 1963, pp. 1-5; Part II, "State Loans and Guarantee Programs," December 1963, pp. 1-5; Part III, "Municipal Bonding for Private Industry," July 1964, pp. 1-7; Part IV, "Tax Exemptions and Concessions," October 1964, pp. 1-7.

    Part I is an overall introduction with emphasis on business development corporation in providing venture capital. Part II indicates useful role of state funds as pooling of high risk loans. Part III concludes that regulation of interstate competition by municipal bonding may best be regulated by new Federal provision. Part IV suggests that subsidies are the most powerful device for inducing industrial relocation, but that such municipal activity may carry equity problems as well as financial risks.

37. Industrial Committee of the Pioneer Valley Association, "The Financial Needs of Small Manufacturers in the Pioneer Valley," in Monthly Review of the Federal Reserve Bank of Boston, March, 1951, vol. 33, no. 3, pp. 1-5.

    This is a report on a survey of 92 firms in a depressed Massachusetts area to determine the need for venture capital for expansion. Conclusions propose a development credit organization and a management consulting service for small manufacturers.

38. Malinowski, Zenon S., and Kinnard, William N., The Place of Small Business in Planned Industrial Districts, Storrs, Conn.: Institute of Urban Research, University of Connecticut, August, 1963.

This study reports on a national survey of industrial development district (and on one Connecticut case study). Factors in the survey are broken out regionally, and there is emphasis (in the sample and report) on New England. Included are general recommendations on size of firm, financing and sponsorship in relation to area investment and economic development.

39. Smith, Edward K., "The Financial Resources of New England and Their Use," as Chapter 11 in National Planning Association, The Economic Stat of New England, New Haven: Yale University Press, 1954, pp. 397-441.

This report discusses New England personal, institutional and governmental sources of capital in 1951-1952, with note of industrial developmen efforts. It concludes that the region's financial system is well organized for the needs of firms with respect to short term credit, though there are some barriers to effective use of long-term credit.

C. Public Investment (power)

40. Committee on Public Works, U.S. Senate, Passamaquoddy-St. John Hearings on S. 2573, August 12, 1964, and Appendix Material for the Hearings. Washington: U.S. Government Printing Office, 1964.

This report and the appendix include views and discussions of cost, the nature of the project and the value of output. The appendix also reprints the 1961 International Joint Commission Report; the Hearings include the Department of Interior Report which concludes that the projects are economically feasible.

41. Shipman, William D. Alternative Proposals For Electric Power Development In Maine, Research Report No. 28. Federal Reserve Bank of Bosto 1964.

This report compares public and private investment proposals from the views of investment costs and prices of energy. It concludes that the "Quoddy" project is submarginal, that the St. John River project is the strongest public proposal, and that the regional planning to integrate Main and Canadian power sources for New England offers hope for reducing power costs.

42. Wilkinson, John M., "New England's Power Developments: Part I, The Private Utility Industry," in New England Business Review, February 1966, pp. 1-17, and "Part II, Public Power Proposals," in New England Business Review, April 1966, pp. 2-17.

Part I relates trends and projections of power demand to investment plans of power companies through 1972. Intersystem ties and rates of investment are also related. Part II discusses public power proposals for importing Canadian power, for a State of Maine nuclear power project, for Federal development in the Dickey-Lincoln School project and for import of thermal power from Appalachia. Costs, price effects and tax relationships to private power proposals are discussed. The conclusions are that none of the public proposals by itself is adequate to meet the gap between current investment and 1972 needs and that, since both private and public power projects stimulate economic development, competition among them may be wasteful.

III. Data Sources

A. Regional Data Sources

43. The Federal Reserve Bank of Boston. New England Economic Almanac. Issues 1957-1961 and supplements. General data source.

44. The First National Bank of Boston. New England Trends, 1939, pp. 35-36.

This report includes charts of trends from 1870 to 1937 in property taxation and net debt of state and local government in New England. Comparisons with other regions suggest the New England states relied more on taxation and less on debt than others.

45. Stacey, Benjamin F. (editor). Source Book of New England Economic Statistics. New England Council, 1947. A bibliography of data sources which includes current series; state and local government finances are noted on pages 25, 26.

46. Tax Foundation, Inc. Facts And Figures On Government Finance. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1965. Issued periodically, with prior editions (e.g., 1948, 1956), published by the Tax Foundation. Has data on nation by state, region and function.

47. The Tax Foundation. Recent Trends In Major State Taxes, 1941-1947. New York, 1948.

A general discussion of major state tax sources and trends during this period with appendix tables by state.

48. Theodore, Chris A. New England Economic Sudicators. Boston University College of Business Administration, 1955. See also second edition, 1957. Has data on state finances and other relevant to finance, tax bases.

B. 1970 Projections

49. Federal Reserve Bank of Boston. 1959 Annual Report, The New England Economy in 1970, Boston: Federal Reserve Bank of Boston, 1960.

This is based on research reports published separately by the Federal Reserve Bank of Boston. The reports notes lower investment rates (1954-1956) and relates amount of capital expansion needed to promote higher regional income and growth to 1970. The report suggests New England's lower interest rates and capital availability will help industrial expansion. State and local government capital needs for highways and education are cited; there is a review of state and local expenditures projected to 1970 by state, by function and by level of government.

50. Federal Reserve Bank of Boston, 1970 Projection Research Reports, Boston, 1959. These are reports projecting changes in the 1960's by separate authors. Listed below are those related to taxation, public finance or investment; those related to specific industries or other areas of interest are not noted.

a. T. Y. Shen, New England Manufacturing Industries in 1970, Report #1. Analysis is primarily related to employment, but capital expenditures per production worker and by industry are also discussed.

b. Paul S. Anderson, New England Banking and Other Financial Functions in 1970, Report #2. Projects liquid savings and assets of institutional investors, relevant as sources of investment funds.

c. Marguerite I. Coughlin, Educational Needs in New England to 1970, Report #3. Projects enrollment changes by state as related to current public spending and to capital needs for classrooms. Also discusses roles of private and public higher education and proposals for regional cooperation.

d. Joseph F. Turley, Goals in Urban Renewal for New England, Report #6. Discusses and tabulates urban renewal principally in terms of substandard dwellings and housing needs, indicating the above average age of New England housing and greater urban renewal: population ratio for New England than for the nation. Surveys 1959 authorizations for urban renewal by state, project, city size, and planned use of cleared land. Projects 1970 regional needs on basis of housing and industrial development in urban renewal.

e. Robert W. Eisenmenger, Land Use Changes in the 1960's, Report #10. Describes relationships among land use patterns, planning, urban renewal, industrial parks and property taxation.

f. Edwin F. Estle, New England's Personal Income Projected to 1970, Report #12. Projections of personal income by source and by state include discussions of transfer payments, social insurance and deduction of personal tax payments to project disposable income to 1970.

g. John J. Hughes, Residential Construction in New England, Report #13. Projects change in housing values by state, relevant to projections of property tax base.

h. Edwin F. Estle, Trend of New England's State and Local Finances to 1970, Report #15. Projects regional growth from 1957 to 1970 in state and local expenditures on basis of past trend and anticipated needs caused by population growth, urbanization and higher income. Tabulations by function, level of government and by state. Revenue projections to 1970 are based on 1958 tax rates and lead to deficit anticipations because of inadequacy of 1958 revenue sources. Also projects state and local indebtedness.

i. Robert W. Eisenmenger, New England's Water Supply in 1970, Report #18. Proposes regional interconnection of metropolitan water systems to meet different needs; discusses penalty prices at peak demand times and needs for pollution control.

51. Mushkin, Selma, and Harris, Robert J., Financing Public Welfare: 1970 Projection. Chicago: The Council of State Governments, 1965.

This is one of a series of monographs of state-by-state projections on state government functions and taxation under the direction of Dr. Mushkin. Now under the auspices of The George Washington University, Washington, D. C., Project '70 has a great deal of current and projective data useful in regional analysis of state and local government finance. Other reports include: State Programming and Economic Development, 1965; Property Taxes: The 1970 Outlook, 1965; Public Spending for Higher Education, 1970, 1965, and Local School Expenditures, 1965.

C. National Reports with Regional Breakdowns

52. Advisory Commission on Intergovernmental Relations, Measures of State and Local Fiscal Capacity and Tax Effort, Report M-16, Washington:

Advisory Commission on Intergovernmental Relations, Oct., 1962.

This study compares actual tax yields in 1960 with hypothetical yields from models of a representative tax structure applied to each state. It also relates tax burdens by state. This approach suggests alternative tax resources and extrapolates results of use of such sources; while it is not regional in approach, the comprehensive tables permit interstate comparisons on a regional and national basis.

53. Labovitz, I. M., Federal Revenue and Expenditures in the Several States. Washington: Library of Congress, 1962.

An analysis by region and state of the 1960-1962 average incidence of Federal tax revenues and expenditures, this study describes shares of the national total.

54. Mushkin, Selma, Illustrative Estimates of Federal Expenditures and Revenues, by States. Washington: U.S. Public Health Service, 1957.

This report describes the incidence of Federal taxation by state and region in 1954 and allocates selected Federal expenditures.

55. Tax Foundation, Inc., State Expenditure Controls: An Evaluation, New York: Tax Foundation, Inc., 1965. See also the Supplement and Government Finance Brief No. 2 (New Series), Oct. 1965, both with same title.

This study is not regionally oriented, but it contains state-by-state analysis of laws and processes on budgets and expenditures and a separate section on Federal grants and legislative control over state use of Federal funds. This information is relevant to any regional activity which would require state fiscal participation.

56. U.S. Senate Subcommittee on Intergovernmental Relations, Geographic Distribution of the Impact of Federal Expenditures. Washington: in process.

This report allocated Federal expenditures by state and region, 1957-1963, and relates programs by category and changes over the period to distributions of population and personal income. It concludes that most Federal expenditures programs are not equalizing.

TASK FORCE REPORT K

State Organization for Planning and Development in New England

AVERY M. COLT

I. Introduction

The Purpose of this study is to identify state mechanisms for economic development in New England, to describe their organization, and to diagram their functional interrelationships. Incidental to this there has been an attempt to identify certain additional resources for economic development: publications, public agencies not directly connected with development, and private institutions and firms. The resulting report is presented with this caution: it is neither comprehensive, complete, nor definitive. For one thing, there has been too little time in six weeks to do more than make a beginning. Perhaps more important, the subject being both broad and ill defined, a necessary first step has been to develop a conceptual framework for the study. While this framework has made the subject manageable, and gives the study a focus, it may also exclude factors which in a different context would be significant.

The conceptual framework was developed in three stages which should be described here, before proceeding to the report proper: 1) a provisional definition of economic development was developed so that a rough judgement could be made as to the types of agencies and functions to be investigated, 2) an approach to the subject was determined, and 3) a study method was prepared.

A. What is Economic Development? In defining economic development the author does not necessarily offer his own settled opinion as to what economic development is, or ought properly to be. His aim here has been merely to provide an operational framework broad enough to move around in freely. To this end, certain factors have been identified as significant to the development process, and thus worthy of consideration. The operating assumptions then, are as follows:

1. That the basic components of the development process are: (a) the existing natural and human resources, (b) existing socio-economic conditions and interrelationships, (c) the existing economic structure and infrastructure, (d) the impact of present and future operations in the private sector, and (e) the impact of present and future operations in the public sector.

2. That development involves more than promoting tourism and industry -- important as these are. A broader concept of the development process would include:

    (a) recognition of additional development areas: education, medicine, commerce, finance, entertainment, government, and science and technology.

    (b) recognition of the need for an overall state and (multi-state) regional development policy, supported by long-range comprehensive development planning. This assumes participation by economists and planners, and interagency and interstate cooperation and coordination.

(c) recognition of the untapped resources which the states may bring to the development process.

3. That the purpose of the states in seeking economic development is frankly to: (a) create conditions conducive to development of the private sector, and (b) to maximize the positive effects of their own impact upon the economy: through goal setting and policy determination, effective internal organization, and development-oriented state taxing and spending operations.

B. An Approach to the Subject. Given this a broad definition of economic development it has seemed advisable to approach the study from a single agency point of view rather than from the perspective of several agencies. Hopefully, this avoids fragmentation and unnecessary overlap of perception. In each of the New England states planning and development functions are housed in a single agency, and this agency has seemed the logical one to begin with -- especially when one considers that the focus of the Regional Action Planning Commission will be upon planning for development. In effect, this has meant examining the organization and operations of state planning and development agencies: 1) at the local, regional, state, and multistate levels, 2) in the public and to some extent the private sectors, and 3) in all those areas of activity which have or could have some impact upon the New England economy. The study approach has been to ask: what functions does the agency perform? How is it organized to perform them? What are its relationships with other state agencies, similar agencies in other states, and client groups concerned with planning and development?

C. The Study Method. Preliminary discussions were held with persons experienced in planning, industrial development, and economics. Interviews were then held with one or more officials in each of the state planning and development agencies. A series of questions were asked concerning organization of the agency, its development functions, its planning operations, inter-agency liaison within the state, interstate relations, services provided to local and regional planning groups and development groups, capital budgeting, related legislation, publications, and miscellaneous other related agencies and activities. Information received was supplemented by reading key published sources and follow-up telephone interviews. Finally, a draft report was prepared on each state, and returned to interviewees for review. All state officials have been uniformly helpful. This report remains, however, the responsibility of the author.

No attempt has been made to present a fully rounded picture of the state planning and development agency. Emphasis has been upon organizational structure and functional relationships: program and operational information is provided only to help illustrate these factors. Some greater attention has been devoted to the planning side: 1) because less is known about organization for planning than is known about development, 2) because this would seem to meet best the needs of the Commission, which will presumably be more active in planning than administering development activities. By the same token no effort has been made to evaluate agency goals, programs, or operations; but every effort has been made to present as clear an outline as possible of agency organization in performing its role. The bibliography following each section is a partial listing only, intended primarily to indicate the range and type of published materials available.

II. Some Questions Facing the Commission

A. Introduction

This study is prepared, ultimately, for use by the New England Regional Action Planning Commission. It may be appropriate, therefore, to review several questions arising from the report; questions which will effect the evolving structure, scope, and functions of the Commission. The body of the report should be read with these questions in mind. They fall under four main heads:

1. Conceptualizing the development process, and planning for development.

2. Areas in which further research is needed concerning state organization for planning and development.

3. The relationship of the Commission to state agencies for planning and development, including those at the local and regional levels.

4. The relationship of the Commission to multi-state regional agencies in New England.

B. The Need for a Conceptual Framework

How will the Commission determine its role? Perhaps the most important task before the Commission is to arrive at a conceptual framework within which it can shape its operations. Within the mandate of the Public Works and Economic Development Act, it will have to arrive at a working definition of the development process (and of planning for development) as it applies to New England. In both economic and governmental terms it will have to determine the scope and emphases of its activities; the functions it will perform and the tools that it will use. This would seem to be a necessary prerequisite for its other activities: internal organization, development of relations with other agencies, goal-setting, and of course, planning. It is not within the scope of this report to suggest a framework. It is within its scope, however, to suggest that this framework be developed at an early stage so that the Commission's evolving organizational structure can reflect and serve the main thrust of the Commission's intent.

C. Further Research

What further research is needed? Time factors have limited both the scope and exhaustiveness of this report. These limitations identify opportunities for further research.

1. Additional Sources

A number of potential sources of information might profitably be examined in depth: statutes, administrative regulations, appropriate state constitutional provisions, state budget documents, state and local planning studies, OEDP's submitted to the ARA, and the annual reports of development-related agencies.

2. State Agencies

Not all agencies operating in the planning and development field have been properly identified and described, or their inter-agency relationships spelled out. Further specific attention should be directed to these agencies, even where they do not seem directly connected to the development process at the present time. They include: state administrative agencies, state resources agencies, state agencies with responsibility for capital construction, state authorities with bonding power for capital construction purposes, departments of agriculture and public instruction, state universities, and urban renewal agencies.

3. Local and Regional Agencies

More attention should be devoted to local and regional agencies within the individual states: their organization and functions; and their interrelationships within single jurisdictions, between jurisdictions, and with agencies at other levels of government.

4. Private Organizations

Another subject for further study is the contribution made by the development divisions of private corporations and public utilities, and by private planning consultant firms. These represent a large reservoir of talent, both institutional and individual. They also represent an important part of the planning and development process about which little is known.

5. Federal Role

Despite their impact, it has not been possible in this report to examine either federal economic policies as they affect New England, nor the effect of development-related grant-in-aid programs, such as those of the: ARA, SBA, HHFA, MDTA, BOR, BPR, etc. In addition, there are the equally important programs of the OEO, the U. S. Corps of Army Engineers, Department of the Interior, Department of Agriculture in rural area development, and recent federal health and welfare legislation. A comprehensive study of the nature of the effect of federal policies, legislation, and grant programs on future New England planning objectives is needed.

6. Capital Budgeting

Finally, the potential significance of changes in capital budgeting procedures to the planning and development process should be studied.

These study areas are, of course, preliminary in nature. Once completed they permit a second type of study of the New England planning and development scene: an evaluation of goals and goal setting mechanisms, an evaluation of performance in terms of both stated goals and actual needs, and an evaluation of existing organizational capacity to fulfill goals and meet needs.

D. The Commission and State Agencies

How will the Commission relate to existing state agencies? Whatever sphere of activity the Commission may carve out for itself, it will be working with the existing state organization for planning and development, and its local and (in-state) regional client groups. This means that it will be entering a system already in process, and with commitments to what has been done, is being done, and has been planned for up to a decade into the future. It is also entering a "political" system, with established inter-state relationships, inter-agency relationships, and state-local service relationships. Finally, it is entering a system where the focus is upon problem solving for immediately pressing or shortly expected problems. These factors will be important in determining the scope, nature, and effectiveness of the Commission's efforts.

It is also true, however, that the planning and development system is in a state of flux. Involved are such issues as: the proper breadth and nature of development activities, the breadth and nature of planning activities, the manner of planning for development and how this is related to other planning activities. Specific questions include:

1. The proper location of the planning function. Should it be centralized: Should it be located in the Governor's Office, or the Department of Administration? Should it report directly to the Governor? What should its relationship be

with the economic development function? With other state agencies?

2. How should inter-agency coordination be achieved? At the present time, coordination is achieved in most states through a system roughly equivalent to a set of interlocking directorates. What effect does this have on the decision-making process? On implementation of decisions? What alternatives are there?

3. What is the role of local and in-state regional entities and their activities? In some states the answer is clearer than in others. One common theme seems to be the evolving importance of regional approaches within the individual states.

An understanding of these questions will also be important as the Commission establishes a role, functions, and organizational form of its own.

E. The Commission and Regional Agencies

How will the Commission relate to other regional agencies? The Commission's activities will also involve it with other multi-state agencies in New England; more should be learned concerning the structure and function of these agencies. Some of the comments made concerning the Commission's relationship with state agencies also apply here: regional agencies may also have a commitment to existing processes, have developed "political" relationships, or have a particular orientation to the problems they deal with. These the Commission will have to take into account. In considering its relationship with multi-state regional agencies, however, the Commission will also be faced with a unique problem: shaping the scope and nature of its functions to complement those of another regional planning agency which does not even exist as yet.

Two states, New Hampshire and Rhode Island, have approved the New England Interstate Planning Compact. Approval by a third state will bring into legal existence a New England Interstate Planning Commission. The mandate of this Commission will be broad, including "physical, social, and economic resources." Its functions will be, briefly: 1) data collection, 2) preparation of regional plans, 3) assistance to party states in regional planning, 4) study of methods for better utilization of federal programs, and 5) to encourage party states to submit plans with regional significance to the Commission for review. This Commission, hereafter referred to as the compact agency, is authorized to contract for studies or to perform studies itself.

Now that the Regional Action Planning Commission has been established the compact agency may never come into existence. On the other hand, a third state might well ratify the compact during the next legislative session, in which case the Commission will have done well to have thought out ways of assuring cooperative co-existence of the two agencies.

The problem is two-fold: 1) the Commission should consider ways to avoid a duplication of functions and activities -- this will be particularly important if both the Commission and the compact agency establish a full-time permanent staff; 2) thought should be given to ways of developing complimentary rather than competing relationships with the state and regional agencies that both will deal with.

Some differentiation between the two agencies could be created in one of several ways:

- One agency might emphasize data gathering, the development of goals, and preparation of an overall long-range plan for New England; while the other utilized the data, and prepared specific planning studies, pursuant to the established goals and long range plan.
- One might serve in an advisory capacity only, to the Governors, state planning and development agencies, and the other regional agency; while that other employed a full time staff for planning operations.
- One agency might focus on planning activities, while the other emphasized technical assistance to state planning and development agencies, and inter-state coordination of their activities.

These are offered as examples, not as suggestions.

III. SUMMARY OF STATE ORGANIZATION FOR PLANNING AND DEVELOPMENT

A. Introduction

The purpose of this section is to provide a brief analysis of state organization for planning and development. Information is taken from the state sections which follow, where it is described in greater detail. The section is primarily concerned with: 1) the organization and functions of state planning and development agencies, 2) the relationship between these agencies and other state agencies, and 3) the relationship between these agencies and local and regional organizations within the state.

In each of the six New England states, a single main agency has been identified as housing planning and development activities. They are the:

Maine Department of Economic Development
New Hampshire Department of Resources and Economic Development
Vermont Development Department
Massachusetts Department of Commerce and Development

Connecticut Development Commission
Rhode Island Development Council

Each of these agencies performs five major functions:

1. Industrial Development (with varying emphases on commerce)
2. Tourist Promotion
3. Public Relations
4. Research
5. Planning

The nature and scope of these functions differs from state to state, however, as does the internal organization of the agencies for their performance, and the relationship which each of these functions bears to each of the others.

In addition, each of the six agencies performs one or more functions which are not common to all six. These include operations relating to:

Capital Budgeting
Housing
Urban Renewal
Parks
Resources
The Geological Survey

Tables I and II summarize the main outlines of agency organization and functions performed.

B. Agency Organization

In three states, the planning and development agency is a state department (Maine, New Hampshire, Massachusetts), and in a fourth it is housed in the Governor's Office (Rhode Island). In all four of these states, the executive head of the agency is appointed by the Governor. In Vermont and Connecticut the agency is headed by a board or commission, which has been appointed by the Governor, and which in turn appoints the executive head of the agency.

The Five Major Functions. Although all six agencies perform industrial development, tourist promotion, public relations, research, and planning functions, they group and locate these functions differently.

> Industrial Development. In five of the six states this function is performed by a major operating division, which reports directly to the executive head of the agency. In New Hampshire, however, industrial development is handled by one of several sub-divisions of a larger Division of Economic Development. (Other sub-divisions perform

TABLE I

AGENCY ORGANIZATION

STATE	ORGANIZATION OF AGENCY	APPOINTMENT OF EXECUTIVE HEAD OF AGENCY	OPERATING DIVISIONS (The division is underlined. Subdivisions are not underlined.)				
Maine	Department	Governor	Publicity and Public Relations	Vacation Travel Promotion	Industrial Promotion	Geological Survey	Research and Planning
New Hampshire	Department	Governor	Parks	Resources Development	Economic Development: Commercial Development, Industrial Development, Planning, Promotion (State Geologist is in Planning Section).		
Vermont	5 - member Board appointed by Governor	Board	Industrial Development	Publicity	Editorial Offices of Vermont Life	Central Planning Office	
Massachusetts	Department	Governor	Economic Development	Planning: Planning Assistance, Area Planning	Tourism	Housing	Urban Renewal
Connecticut	12-member commission, staggered 5-year terms, appointed by Governor	Commission with approval of the Governor	Business and Industrial Development: Research, Industrial Development	Promotion and Public Relations: Vacation Travel, Public Relations	Community Development: Planning, Urban renewal	State-Wide Planning	
Rhode Island	In Governor's Office	Governor	Research	Planning	Industrial Development	Publicity and Recreation	

AGENCY FUNCTIONS

STATE	INDUSTRIAL DEVELOPMENT	TOURISM	PUBLIC RELATIONS	RESEARCH	PLANNING	CAPITAL BUDGETING	URBAN RENEWAL	GEOLOGICAL SURVEY OR STATE GEOLOGIST	OTHER
MAINE	X	X	X	X	X	--	X	X	--
NEW HAMPSHIRE	X	X	X	X	X	--	--	X	Parks and Resources Developme
VERMONT	X	X	X	X	X	X	--	--	Vermont Life
MASSACHUSETTS	X	X	X	X	X	--	X	--	Housing
CONNECTICUT	X	X	X	X	X	--	X	--	--
RHODE ISLAND	X	X	X	X	X	X	--	--	--

commercial development, planning, and combined tourist promotion and public relations functions.)

Tourist Promotion and Public Relations. Two of the five major functions help support performance of the other three. The research function, as noted below, is of particular importance to both industrial development and planning. Public relations, similarly, is important to both industrial development and tourist promotion. For several reasons, however, there has been a tendency for the states to combine the tourist promotion and public relations functions in a single division or sub-division of the main agency. For this reason they are treated jointly, here. (The tourist promotion effort depends more heavily upon public relations, and upon media advertising in particular, than does the industrial development effort.)

Maine is the only New England state in which there are separate operating divisions for Publicity and Public Relations and Vacation Travel Promotion. In Connecticut and Rhode Island the same operating division performs both functions. The same is true in Vermont with this exception, that there is a separate operating division responsible for publishing the state magazine. The two functions are also combined in New Hampshire, but as explained above, the Promotion section is not an operating division, but a sub-division of the operating division. In Massachusetts, specific responsibility for public relations does not seem to be assigned to any one operating division, but the Division of Tourism has a large promotional staff.

Research. Like public relations, the research function is important in the performance of at least two other main functions: industrial development and planning, and some research operations are maintained in or by divisions performing both. In Maine, the research and planning functions are housed in a single operating division: the division of Research and Planning. In Connecticut, it is a sub-division of the Division of Business and Industrial Development. In Rhode Island, it is a separate operating division. And in Massachusetts, the research function is housed in a Research and Statistics Section under the Commissioner, serving the operations of the entire Department of Commerce and Development. In Vermont and New Hampshire there is no separate division or sub-division with research responsibilities. Rather, the industrial development and planning divisions each have their own research personnel.

Planning. In all six states the planning function is housed in a distinct division or sub-division. In Massachusetts and Rhode Island this is an operating division, reporting directly to the executive head of the main agency. In New Hampshire it is a sub-division of the Division of Economic Development, reporting to the head of the Division. In

Maine, as noted, it is combined with the research function in the Division of Research and Planning.

In Connecticut the planning function is divided by type of planning. Local planning assistance is a sub-division of the Division of Community Development. State-wide planning and regional planning are handled through the Connecticut Interregional Planning Program, in which the Connecticut Development Commission is one of four participating state agencies. The Commission's state-wide planning section administers its contribution to the program.

In Vermont, the Central Planning Office is administratively a part of the main agency, but prepares a separate budget request, and reports directly to the Governor.

It should be added, in passing, that there is a degree of artificiality in making distinctions between functions, even where these distinctions are supposedly made explicit by assignment to specific divisions and sub-divisions of the agency involved. In some cases, cooperation between divisions with different functions is so close as to make distinctions almost meaningless. In other cases -- especially when dealing with the research and public relations functions -- the assignment of this function to one division does not mean that staff members of another division may not perform the same function in support of their division's particular operations.

Other Agency Functions. A number of additional functions are performed by one or more main agencies. Some of these, such as capital budgeting, are clearly related to economic development and planning for economic development. Others are perhaps less clearly related, but are significant because of their potential impact upon the state economy, or the simple fact that they are performed by the planning and development agency:

Capital Budgeting. At the present time, only two agencies have a capital budgeting responsibility: those in Vermont and Rhode Island. In both states this responsibility is housed in the planning division of the agency. It may also be significant that in Rhode Island the main agency is located in the Governor's Office, while in Vermont the Central Planning Office reports directly to the Governor.

Urban Renewal. The main agency has urban renewal functions in three states: Maine, Massachusetts, and Connecticut. In Maine, urban renewal services are offered by the Division of Research and Planning. In Massachusetts, this function is the responsibility of the Division of Urban Renewal. In Connecticut, it is performed by the Urban Renewal sub-division of the Division of Community Development.

Geological Survey. The Geological Survey is an operating division of the Maine Department of Economic Development, the main planning and development agency. A part-time geologist is also employed in New Hampshire, in the Planning sub-division of the Division of Economic Development, and serves as state geologist.

Other. In New Hampshire, the Division of Parks, and the Division of Resources Development, are operating divisions of the main agency. In Massachusetts, the Division of Housing is an operating division of the main agency.

C. Main Agency Relationships With Other State Agencies

Although the main agency has primary responsibility for planning and development, it is not the only agency with such responsibility. The proper performance of its functions requires liaison, coordination, and cooperation with other agencies having planning and development functions. There are in addition a number of state agencies not specifically concerned with these functions -- such as state resource and capital expenditure agencies -- whose operations have, or can have an impact on the state's economy. With these, also, some degree of liaison is usually maintained. The purpose of this section is to identify and review these relationships in each state.

Liaison, coordination, and cooperation are usually maintained in one of several ways:

1. ex officio membership of a commission member or the executive head of the main agency on the governing board of another agency

2. joint membership of the main agency with other agencies in a coordinating committee

3. designation of a member of the main agency to head the operations of another agency

4. designation of a member of the main agency to staff the operations of another agency

5. designation of the main agency to serve in an advisory capacity to another agency, or vice versa

6. designation of the main agency to review certain operations of another agency, or vice versa

7. designation of the main agency as the capital budgeting agency.

There are, of course, a host of informal relationships which can result in close inter-agency liaison, but this review is limited to formal relationships pursuant to statute, executive order, administrative regulation, inter-agency agreement, etc.

1. Industrial Development Financing Agencies. New England has pioneered in the development of two devices to assist in financing industrial development: the state-wide development credit corporation, and the state industrial building authority.

The first of these is an autonomous, nonprofit corporation, specially chartered by the state. Its purpose is to pool private capital for loan to industrial prospects at advantageously low rates -- prospects which cannot obtain all or part of their needed financing from regular commercial lenders. The corporation is composed of commercial and savings banks, trust companies, savings and loan associations, and insurance companies. These member financial institutions provide a small part of their assets to the corporation, on a loan basis, for its lending operations. Their representatives serve on the Corporation's Board of Directors.

The state building authority, on the other hand, is a state agency. It may dispense state-provided funds, or pledge the state's credit, depending upon its mode of operation. Its activities, depending upon the particular state, may include: 1) mortgage guarantees on industrial sites, plants, and operating machinery, 2) direct loans to business and industry, 3) loans to local development corporations or, 4) speculative building of industrial plants for subsequent lease or sale. The Directors of the Authority are usually appointed by the Governor. Two states are now in the process of establishing Recreational Building Authorities, as well. (Table III on the next page indicates which states have established development financing agencies.)

Liaison between the main planning and development agency and these other agencies concerned with industrial development financing is important to the performance of the responsibilities of each. It is important, also, to the local and regional development groups, which are serviced by both.

As Table III indicates, all six states have established development credit corporations, and all but Massachusetts have established an industrial building authority. Maine and Rhode Island are in the process of establishing recreational building authorities, and each has also established still a fourth, and somewhat unique agency in the industrial financing field. The Maine Industrial and Recreational Finance Approval Board is a state agency established to review and approve the industrial development revenue bond issues of local communities. The Rhode Island Industrial Development Foundation is a state-level form of the non-profit local development corporation.

Development Credit Corporations. In all but one of the six states, main agency liaison with the DCC is informal, only. In Connecticut,

TABLE III

DEVELOPMENT AGENCIES AND TOOLS

STATE	DEVELOPMENT CREDIT CORPORATION	INDUSTRIAL BUILDING AUTHORITY	RECREATIONAL BUILDING AUTHORITY	OTHER STATE AGENCIES	TAX INCENTIVE	LOCAL DEVELOPMENT BONDS PERMITTED
MAINE	X	X	X	Industrial & Recreational Finance Approved Board: approves local development bond issues.	None	Revenue Bonds
NEW HAMPSHIRE	X	X	--	--	None	Revenue Bonds
VERMONT	X	X	--	--	Tax Stabilization Plan	Revenue Bonds
MASSACHUSETTS	X	--	--	--	None	None
CONNECTICUT	X	X	--	--	None	None
RHODE ISLAND	X	X	Being established	R. I. Industrial Development Foundation; a State Level LDC	Tax Exemption and Tax Stabilization Plan	Revenue Bonds

however, the Chairman of the Development Commission is ex officio a member of the Development Credit Corporation.

Industrial and Recreational Building Authorities. By contrast, formal liaison is maintained between the main agency and the state building authority in each of the five states having such authorities. In Maine and New Hampshire the Commissioner of the main agency is an ex officio member of the industrial building authority. In Maine he is also a member of the recreational building authority. (The New Hampshire Building Authority serves, in turn, in an advisory capacity to the main agency's sub-division of Industrial Development.)

In Vermont, the Director of the Division of Industrial Development serves as recording secretary to the building authority. In Connecticut, the Development Commission must review all applications received by the state industrial building commission. In Rhode Island, the Managing Director of the Development Council serves as Acting Manager of both the industrial and the recreational building authorities.

The Specialized Agencies. Here, once again, any liaison between the main agency and the specialized agency is informal in nature.

2. Resources and Capital Expenditure Agencies. To be meaningful and effective, planning and development activities must be coordinated with those state agencies which have the greatest actual or potential impact on the state economy: agencies with responsibility for economic resources, and agencies with large-scale capital expenditures. This necessity is recognized in each of the six states by one or more formal coordinating relationships between the main planning and development agency and other agencies of this type. There are four main forms which this relationship may take:

1. The grouping of resource agencies in a single umbrella agency, or inter-agency coordination group, with provision made for membership or other formal relationship with the main agency and the highway and public works agency.

2. Through the planning process, itself. The main agency may share responsibility with other agencies for planning studies; or the main agency may, in a sense, contract with other state agencies, for a part of the planning process. In the first instance, the availability of federal funds from both the H. H. F. A. and Bureau of Public Roads for comprehensive planning, has in many cases resulted in joint planning or administration of planning by state planning agencies and highway agencies.

3. The capital budgeting function, by its very nature, is both a planning and coordinating function. The degree to which it is

both, and the way in which the function is performed, does of course vary from state to state. As Hillhouse and Howard indicate, the capital budgeting process does not always include all state capital expenditure agencies. It probably omits most state authorities with bonding power, as well.

4. Miscellaneous advisory or other special purpose committees also serve to bring the main agency into contact with other state agencies.

Umbrella resource agencies or inter-agency coordinating committees have been established in three states. In New Hampshire, the main agency itself -- the Department of Resources and Economic Development -- combines the parks and resource development functions with the economic development functions. In addition, a state Resources and Development Council has been established, under the chairmanship of the Director of the state Division of Planning. Other members of the Council include agencies with responsibility for water, forests, parks, fish and game, and highways. The Vermont Natural Resources Inter-Agency Council brings together representatives of the main agency and agencies responsible for agriculture, fish and game, forests, health, highways, water resources, and the state Public Service Commission. In Connecticut, resource agencies have been grouped under a Council of Agriculture and Natural Resources, and a Department of the same name.

Whether formally or informally, the planning process in all of the New England states is coordinated with other appropriate state agencies. (For that matter, the industrial development process also involves informal liaison; much of the informational materials provided to industrial prospects by the industrial development division is originally obtained from other state agencies which gather, keep, or use the raw data in their own operations.) Both Vermont and Rhode Island report extensive use of memoranda of agreement with other state agencies, and with the state university, in certain parts of the planning process. (See the individual state sections for detail.) In Massachusetts the Department of Commerce and Development is one of ten agencies represented on the Metropolitan Area Planning Council, and one of four agencies responsible for the Eastern Massachusetts Planning Project. In Connecticut, the Interregional Planning Program is a joint responsibility of the Development Commission, the Council of Agriculture and Natural Resources, the state Highway Department, and the Department of Finance and Control.

Capital Budgeting is a responsibility of the main agency in Rhode Island and Vermont, through their planning divisions.

Advisory and other special purpose groups abound. Some examples of those in which the main planning and development agency participates are:

Maine: The Maine Mining Bureau
The Governor's Outdoor Recreation Advisory Committee
The State Transportation Commission
The State Rural Areas Development Commission

New Hampshire: The Advisory Commission on Access Roads to Private Recreational Areas

The Governor's Committee on (Industrial) Manpower Problems in New Hampshire

Massachusetts: Highway Recodification Committee
State Recreation Commission

D. Main Agency Relationships at the Local and Regional Level

Several types of service are offered to local and regional groups by the planning and the development divisions of the main state agency. On the planning side, the state agency:

1. will help organize local planning and zoning boards and regional planning agencies

2. will offer advice and assistance to local and regional agencies

3. will make application for and administer local and regional "701" planning grants.

4. in at least one state, will do the local planning under "701" grants, on a contract basis

5. in some states, offer financial assistance for local and/or regional planning

On the development side, the state agency:

1. will help organize local and regional development organizations

2. will offer advice and assistance to such organizations

3. will cooperate with the local and regional groups in working with industrial prospects, or on tourist promotion projects

4. in some states, will offer financial assistance for certain kinds of programs and activities.

An observable feature of organization for planning and development at the local and regional levels, and of state services to planning and development groups at these levels, is the tendency towards a division of the two functions. There are reasons for this. And there are also exceptions.

There seem to be two major reasons for the division of functions. First, planning and development functions have developed separately, even where housed in the same main agency. Only recently has there been an effort at the state level to coordinate their activities. As a result, there has been a tendency to develop separate or individual client organizations at the local and regional levels.

Secondly, while local planning and zoning boards, and subsequently regional planning agencies, are official arms of local government units, established pursuant to state enabling legislation, this has not always been the case in the development field. Local development groups have frequently been ad hoc organizations of local business and civic leaders, or arms of local chambers of commerce. Only recently has state enabling legislation provided for more formally organized development groups: nonprofit local development corporations and municipal industrial development boards.

This picture may be somewhat misleading. For one thing, it is entirely possible that some of the same civic leaders in a local community may serve both on the planning and zoning board and the local development organization. It is also likely that informal coordinating mechanisms develop between the two organizations, especially when the planning and zoning board must take cognizance of the needs of industrial prospects.

Then too, the state agencies themselves, by closer coordination of planning and development efforts at the state level, help bring coordination at the local and regional levels. The Community Development Division of the Connecticut Development Commission offers an example: the Division's Planning Section employs an industrial agent for community services, whose work complements that of industrial agents employed by the Industrial Development Section of the Division of Business and Industrial Development. The Community Development Division also administers two industrial development-related programs: one providing loans to local development corporations for developing land to be used as industrial parks, and the other providing a 50% state share of land acquisition cost for industrial parks in deteriorated areas. This latter is handled through the Division's Urban Renewal Section.

A Vermont program will also be of interest. Recent enabling legislation permits local government units to join in the formation of regional development agencies. As a prerequisite, however, they must first have prepared an overall plan pursuant to companion legislation authorizing the establishment of regional planning commissions.

IV. STATE AND REGIONAL REPORTS

A. Maine

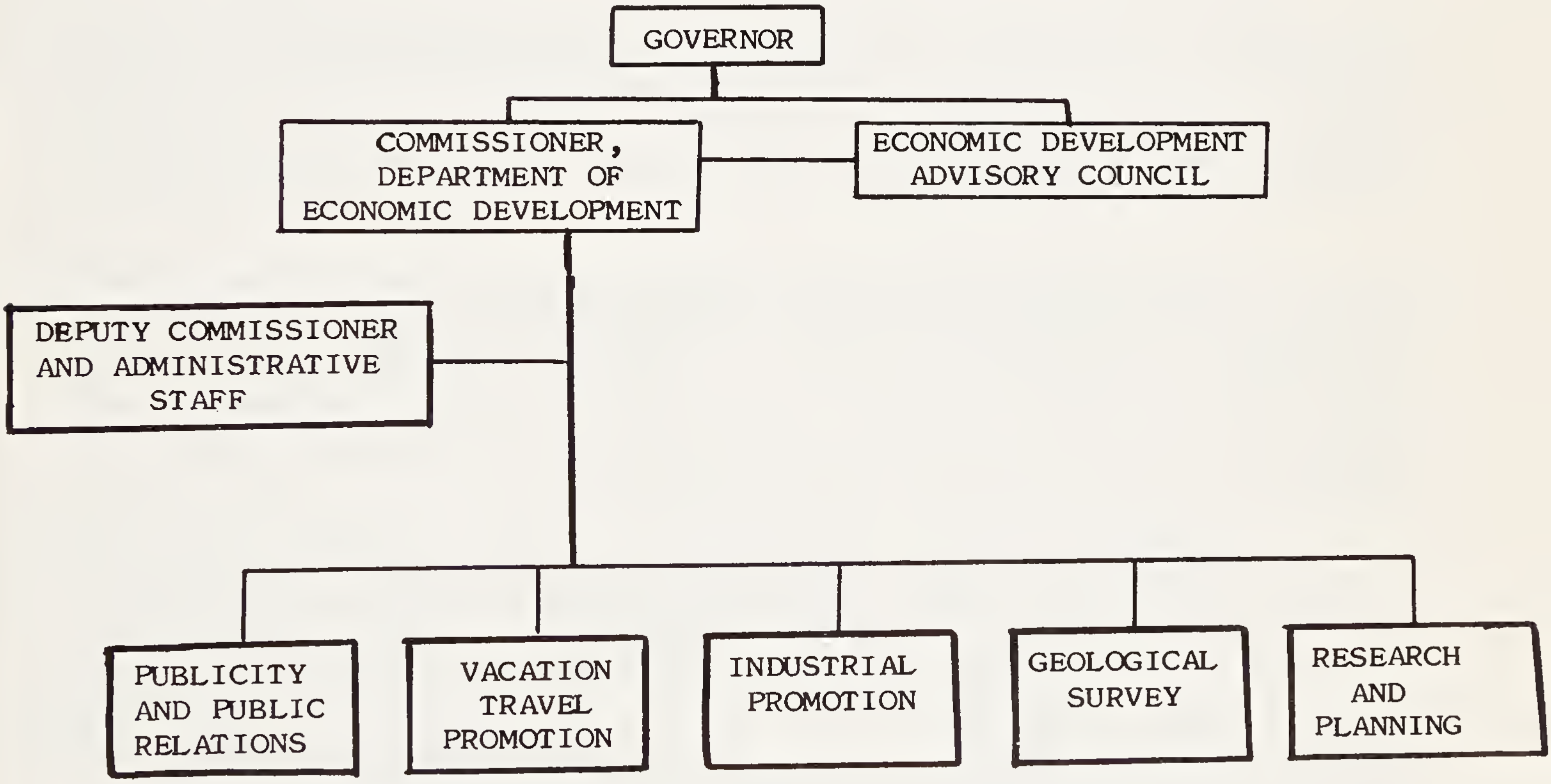
1. The Planning and Development Agency

The main planning and development agency is the Maine Department of Economic Development, established under Title 10, Maine Revised Statutes, ch. 101. The Department is headed by a Commissioner, appointed for a four year term by the Governor, with the advice and consent of the Council.

The office of the Commissioner is supported by a Deputy Commissioner and administrative staff, and advised by a seven-member Economic Development Advisory Council. Council members are appointed by the Governor, and report to both the Commissioner and the Governor.

The Department is divided into five divisions: Publicity and Public Relations, Vacation Travel Promotion, Industrial Promotion, Geological Survey, and Research and Planning. The chief of the Geological Survey is State Geologist.

Organization of Main Agency


GOVERNOR
COMMISSIONER, DEPARTMENT OF ECONOMIC DEVELOPMENT
ECONOMIC DEVELOPMENT ADVISORY COUNCIL
DEPUTY COMMISSIONER AND ADMINISTRATIVE STAFF
PUBLICITY AND PUBLIC RELATIONS
VACATION TRAVEL PROMOTION
INDUSTRIAL PROMOTION
GEOLOGICAL SURVEY
RESEARCH AND PLANNING

2. Economic Development

Economic development activities are primarily the responsibility of the Department of Economic Development and its divisions of Industrial and Vacation Travel Promotion. The Department maintains formal and informal liaison with other state agencies and offers services and assistance to regional and local development groups.

a. State-Level Organization. Maine has established four state-level development organizations.

1. The Maine Development Credit Corporation, which operates under a special state charter.
2. The Maine Industrial Building Authority, which guarantees first mortgage industrial loans up to 90% of project cost, where mortgage is held by a local development corporation.
3. The Maine Recreational Building Authority, which became operative in May, 1966.
4. The Maine Industrial and Recreational Finance Approval Board, which reviews and approves industrial development bond issues (revenue bonds) of local government units.

The Commissioner of the main agency is ex officio member of the board of both Building Authorities. Members of the Approval Board are appointed by the Governor. (The Recreational Building Authority will limit its activities to projects of $150,000 and over. It is assumed that less expensive projects are already adequately covered by other programs, such as that of the Federal Small Business Administration.)

b. Local and Regional Development Groups. There are approximately 100 local development groups in the state, and at least two regional development groups: in Portland and Auburn. The Division of Industrial Promotion, in addition to its other functions, assists local and regional groups in organization and program development; and cooperates in working with industrial prospects. It does not provide financial assistance.

c. Advisory Groups and Inter-Agency Liaison. As noted, the Commissioner is supported by a seven-member Economic Development Advisory Council. In addition, the Department (DED) is one of eight resource agencies (including the State Highway Commission) represented on the Governor's Outdoor Recreation Committee, and one of seven represented on the Maine Mining Bureau. Others on the Bureau are: Agriculture, the Attorney General, Fish and Game, Forestry, the State Geologist (also in DED), and the Water Improvement Commission.

Informal liaison is maintained by the Department with other state agencies, and the Commissioner serves as a member of numerous agencies and organizations, both in and out of state. In-state organization include:

Governor's Council on the Arts and Culture of Maine
State Credit Research Committee
State Transportation Commission
Advisory Commission for Higher Education Study
Committee of 100 of the University of Maine
Apprenticeship Council
Maine World Trade Council
Maine Industrial Development Council
Mount Washington TV Advisory Council
State Rural Areas Development Committee

Regional organizations include the New England World's Fair Corporation and the New England Council.

d. State-Level Development Activities. The state does not offer, or authorize local government units to offer, special tax incentives for economic development purposes. Local government units are authorized to issue revenue bonds for industrial development purposes, following review and approval of bond issues by the Maine Industrial and Recreational Finance Approval Board.

e. Special Product Promotion. The Maine Department of Agriculture and Maine Potato Commission promote potatoes, poultry, milk, apples, and other farm products. The Maine Sardine Council promotes the sardine fishing industry. Funds are obtained from taxes on sardines entering trade, and commercial sardine canners. In addition, state funds are made available to privately organized groups promoting apples, poultry, and potatoes.

The constitutionality of product taxation for development purposes has been challenged and upheld in two cases: State v. Lasky, 165 A.2d 579 (1960), 156 Me. 419, and State v. Vahsling, Inc., 88 A.2d 144 (1952), 147 Me. 417.

The Maine Sardine Council operates an overall development program for the sardine industry, including advertising and publicity, merchandising, market and consumer research, technological research, quality control, and new product development. Total activities, including research grants made to leading universities, are financed through a twenty-five cents per case privilege tax imposed on canners. The tax was requested by the canners, and all funds from the tax are earmarked for the program.

f. Promotional Activities. The 1965 Annual Report of the Department of Economic Development lists a variety of promotional efforts both in and out of state related to tourism, agricultural product promotion, industrial product promotion and industrial development. The map on the following pages indicates the location of major exposition and information activities. Maine cooperates with the other New England states in maintaining regional information offices in Cleveland and New York, primarily for tourist promotion purposes.

3. Planning

The Division of Research and Planning performs several major functions:

1. It is the research arm of the Development Department, assembling certain kinds of economic data and undertaking industrial and economic studies, including preparation of industrial data.

2. It studies specific problems relating to agriculture and sea and shore fisheries.

3. It is responsible for preparation of a state master plan for physical development of the state.

4. It offers advice and assistance to regional and local planning groups, both public and private.

5. It serves as a coordinating agency, reviewing proposals of other state agencies relating to physical development of the state and relating them to the state plan. The Planning Division does not have an approval function, however. The Maine Port Authority and Maine Aeronautics Commission are specifically mentioned in the statute.

a. State-Level Planning. In addition to statutory responsibility vested in the Division of Research and Planning for preparation of a state master plan for physical development, the state legislature has authorized the Economic Development Advisory Council to: "formulate economic goals and develop a comprehensive, master economic plan for the State of Maine." The Council is empowered to employ staff, enter into agreements with federal and other agencies, and to receive federal funds. (Ch. 187, P & S Laws, 1965) A coordinator has been employed by the Council, and in cooperation with the Director of the Division of Research and Planning, is preparing preliminary studies. 1/

b. Regional Planning. The regional and municipal planning law is contained in Title 30 of the Maine Revised Statutes. Under its provisions, two or

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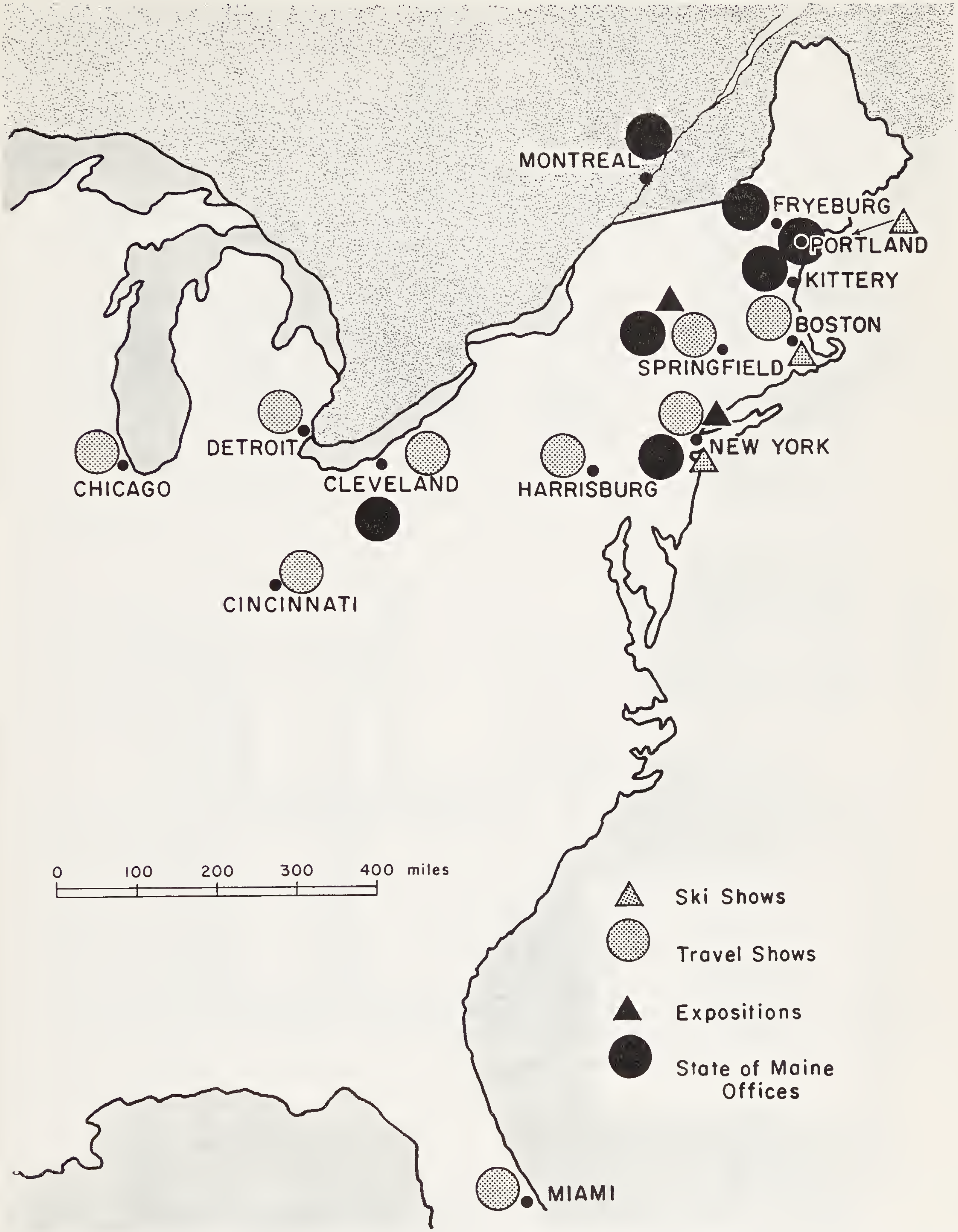
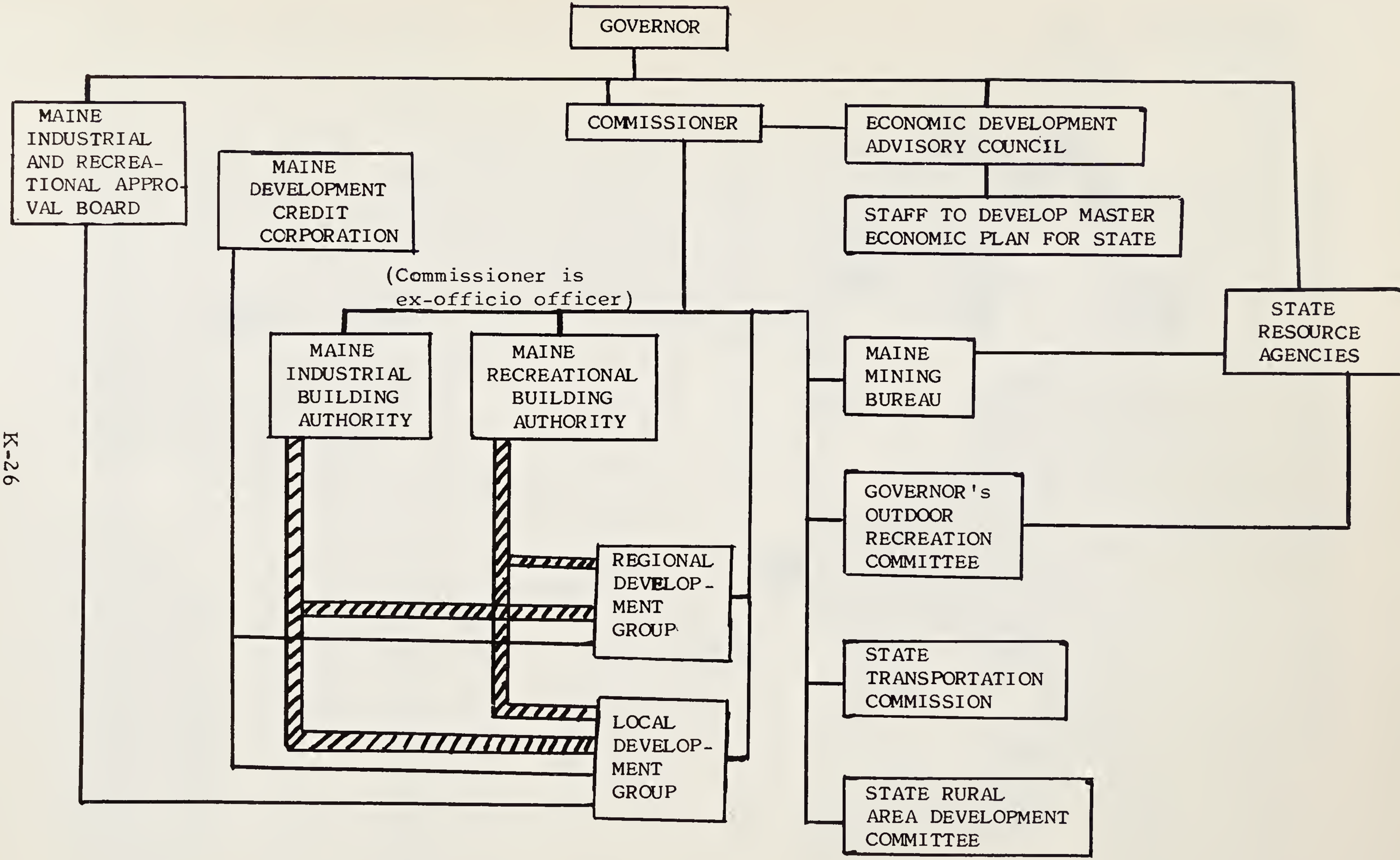
1/ See state bibliography for studies by the Armour Research Foundation and the Northeastern Research Foundation, leading up to this legislation.


MONTREAL
FRYEBURG
PORTLAND
KITTERY
BOSTON
SPRINGFIELD
NEW YORK
HARRISBURG
DETROIT
CHICAGO
CLEVELAND
CINCINNATI
MIAMI
0
100
200
300
400 miles
Ski Shows
Travel Shows
Expositions
State of Maine Offices

ECONOMIC DEVELOPMENT ORGANIZATION


GOVERNOR
COMMISSIONER
ECONOMIC DEVELOPMENT ADVISORY COUNCIL
STAFF TO DEVELOP MASTER ECONOMIC PLAN FOR STATE
STATE RESOURCE AGENCIES
MAINE INDUSTRIAL AND RECREATIONAL APPROVAL BOARD
MAINE DEVELOPMENT CREDIT CORPORATION
(Commissioner is ex-officio officer)
MAINE INDUSTRIAL BUILDING AUTHORITY
MAINE RECREATIONAL BUILDING AUTHORITY
REGIONAL DEVELOPMENT GROUP
LOCAL DEVELOPMENT GROUP
MAINE MINING BUREAU
GOVERNOR's OUTDOOR RECREATION COMMITTEE
STATE TRANSPORTATION COMMISSION
STATE RURAL AREA DEVELOPMENT COMMITTEE

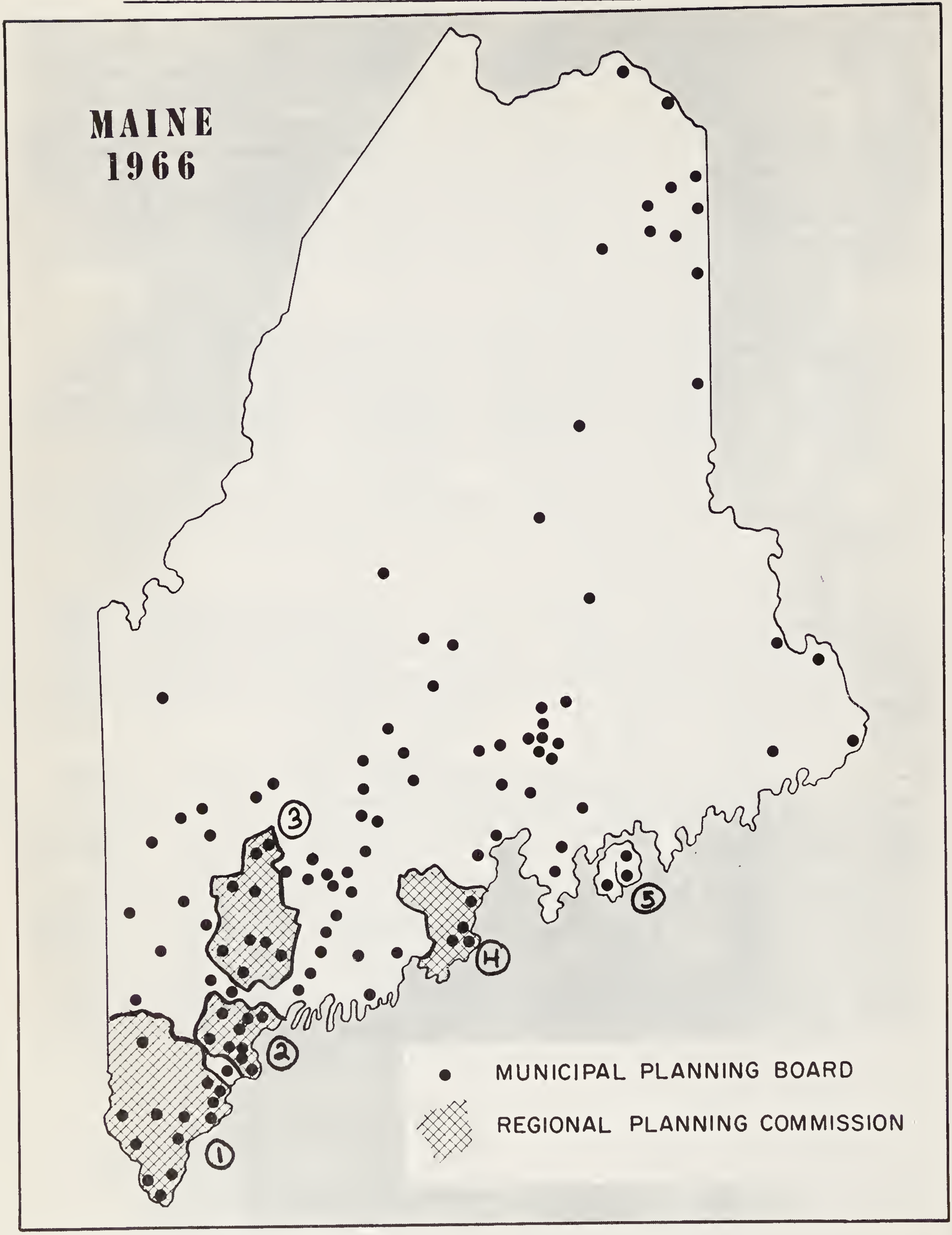
more municipalities having a municipal planning board may join to form a regional planning commission. Appointment to the regional commission is made by municipal officers. Counties in which regional commissions have been formed, may become members of the regional commission. Such commissions are established for the purpose of preparing comprehensive regional plans for the areas within their jurisdiction. The provision for county membership permits county-wide planning, therefore, even where not all municipalities within a county have become members of the regional commission. The commissions may also render planning assistance to local communities within the region, on a fee basis.

The map on the following page identifies the four planning regions which have been established pursuant to this legislation: The York County Regional Planning Commission, Greater Portland Regional Planning Commission, Androscoggin Valley Regional Planning Commission, (Lewiston-Auburn), and the Knox County Regional Planning Commission. Planning studies relating to these regions are listed in the state bibliography.

Although the Penobscot Bay - Mount Desert area is not formally organized as a region, a regional planning study has been done for this area, and is identified in the bibliography.

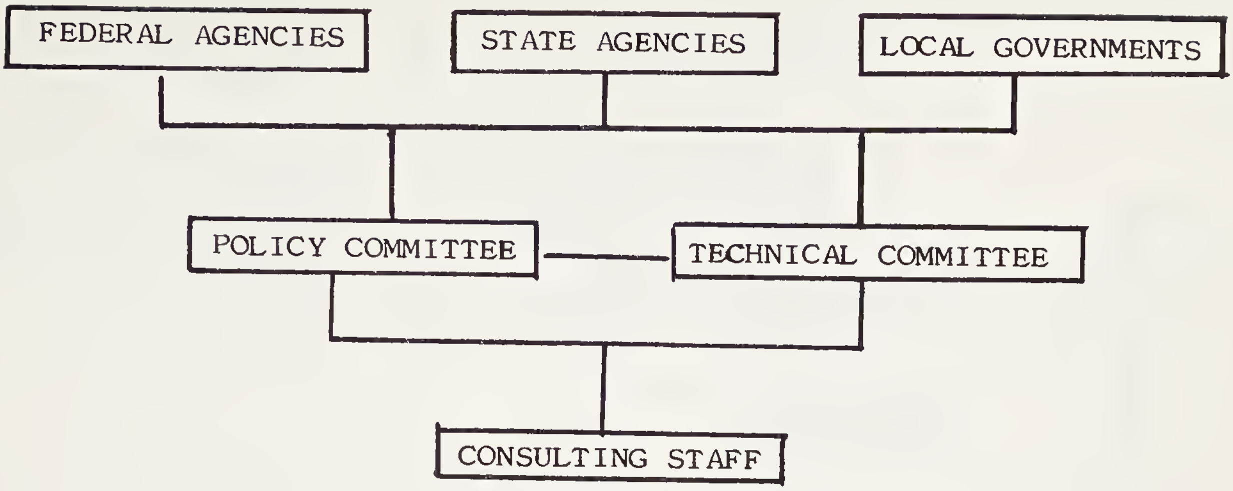
Finally, the New Hampshire entry discusses a joint regional planning project being undertaken across the Maine - New Hampshire border: the Seacoast Regional Planning Project. State participation in this project is being taken pursuant to legislation authorizing planning agencies in both states to assist the planning efforts of their local government units. The project is currently in its first phase.

c. Comprehensive Transportation Studies. Comprehensive transportation studies have been undertaken within the framework of two of these planning regions: the Portland Area Comprehensive Transportation Study and the Lewiston-Auburn-Lisbon Comprehensive Transportation Study. These studies are funded in part by funds provided by the U. S. Bureau of Public Roads and the H. H. F. A. "701" program, which are administered by the Maine Highway Commission and the Department of Economic Development. Both are headed by a policy committee, and supported by one or more technical committees, and employ consultants as staff. Membership on both types of committee is composed of representatives of the federal and state agencies involved, and representatives of the local communities in the planning region.


MAINE
1966
③
H
⑤
②
①
● MUNICIPAL PLANNING BOARD
▨ REGIONAL PLANNING COMMISSION

PLANNING REGIONS:
1. York County
2. Greater Portland
3. Androscoggin Valley (Lewiston-Auburn)
4. Knox County
5. Penobscot - Mt. Desert (Not a formal region)

Organization of Transportation Studies



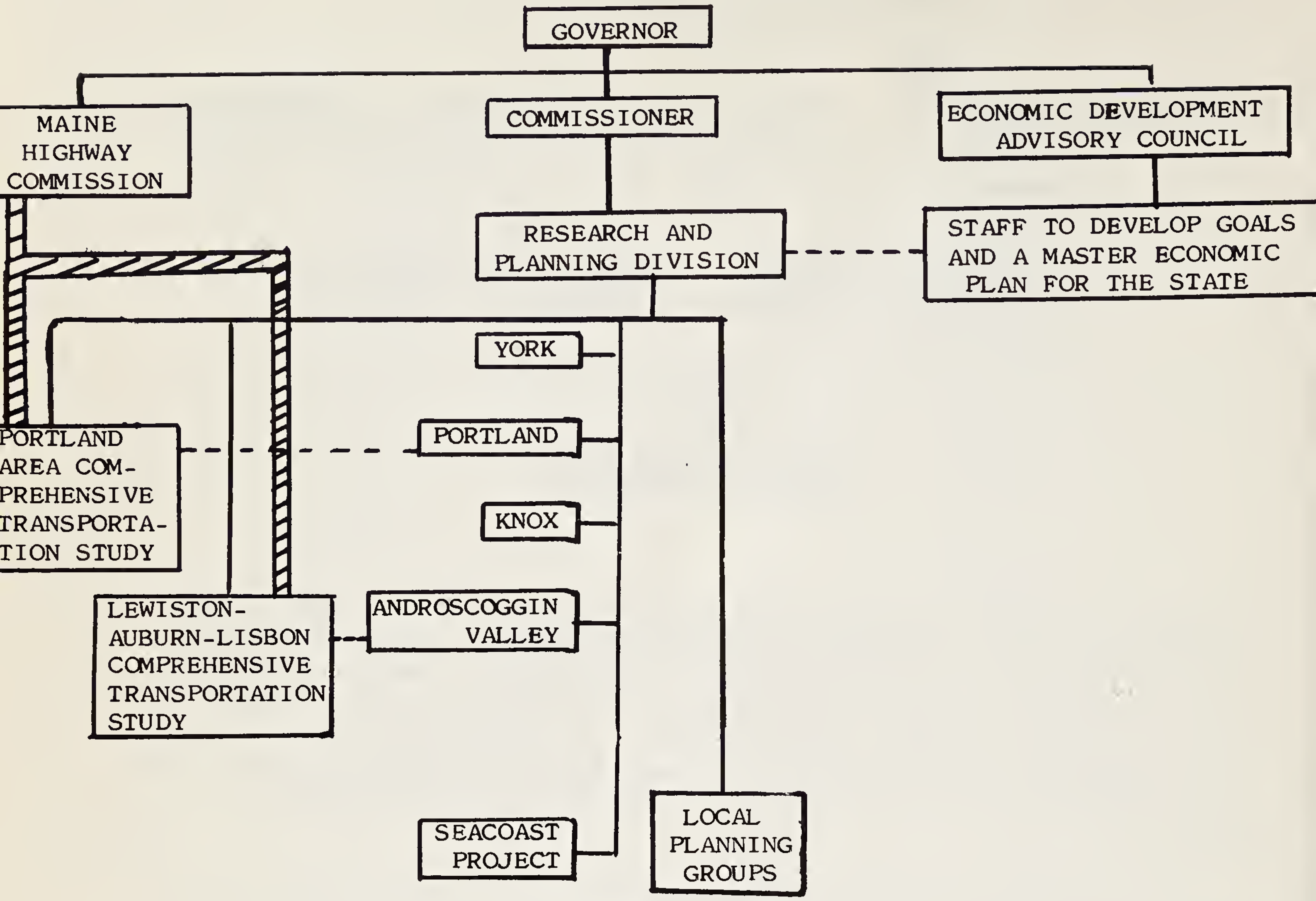
The basis of this inter-agency approach is set forth in the publication: The Coordination of Urban Planning and Highway Planning, A Joint Committee Report by the Maine State Highway Commission, Maine Department of Economic Development, and Maine Municipal Association (Augusta: 1960). This form of cooperation follows federal example: a joint policy statement of the U.S. Bureau of Public Roads and U.S. Department of Commerce (1960) provides for joint funding of comprehensive planning from BPR and HHFA sources.1/

The map on the preceding page indicates that 115 local communities have established planning boards under this legislation. Thirty-five of these communities are within one of the four formally organized planning regions. Some seventy local communities have either completed "701" planning projects, or are in the course of such studies.

The Division of Research and Planning serves as applicant for and administrator of local "701" planning grants. It provides state funds on a matching basis to reduce the local share of the cost from one-third to roughly one-fourth. In addition, the Division offers planning assistance to local communities, and special advisory services for urban renewal. The Division employs an Urban Renewal Coordinator for this purpose. In December, 1965, the University of Maine received a demonstration grant from the U.S. Department of Housing and Urban Development "to aid it in providing an urban renewal technical advisory service to small communities in the State."

1/ State responsibility in Urban Regional Development (Chicago: Council of State Governments, 1962), pp. 123-124.

Planning Organization


GOVERNOR
MAINE HIGHWAY COMMISSION
COMMISSIONER
ECONOMIC DEVELOPMENT ADVISORY COUNCIL
RESEARCH AND PLANNING DIVISION
STAFF TO DEVELOP GOALS AND A MASTER ECONOMIC PLAN FOR THE STATE
YORK
PORTLAND AREA COMPREHENSIVE TRANSPORTATION STUDY
PORTLAND
KNOX
LEWISTON-AUBURN-LISBON COMPREHENSIVE TRANSPORTATION STUDY
ANDROSCOGGIN VALLEY
SEACOAST PROJECT
LOCAL PLANNING GROUPS

4. Capital Budgeting

The capital budgeting function is not housed in the Department of Economic Development. Hillhouse and Howard describe the capital budgeting process as follows:

> "A capital program is prepared by the Bureau of Public Improvements in the Department of Finance and Administration. Highway construction is exempt. The same bureau is in charge of construction after funds have been appropriated. Priorities are assigned only to requests for the next biennium; the program for the following two biennia is only a listing of department requests. The system for assigning priorities is outstanding. For a discussion of this and other features of one of the best capital-budgeting systems among the states, see the test." 1/

1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Governments, 1963), p. 154

B. New Hampshire

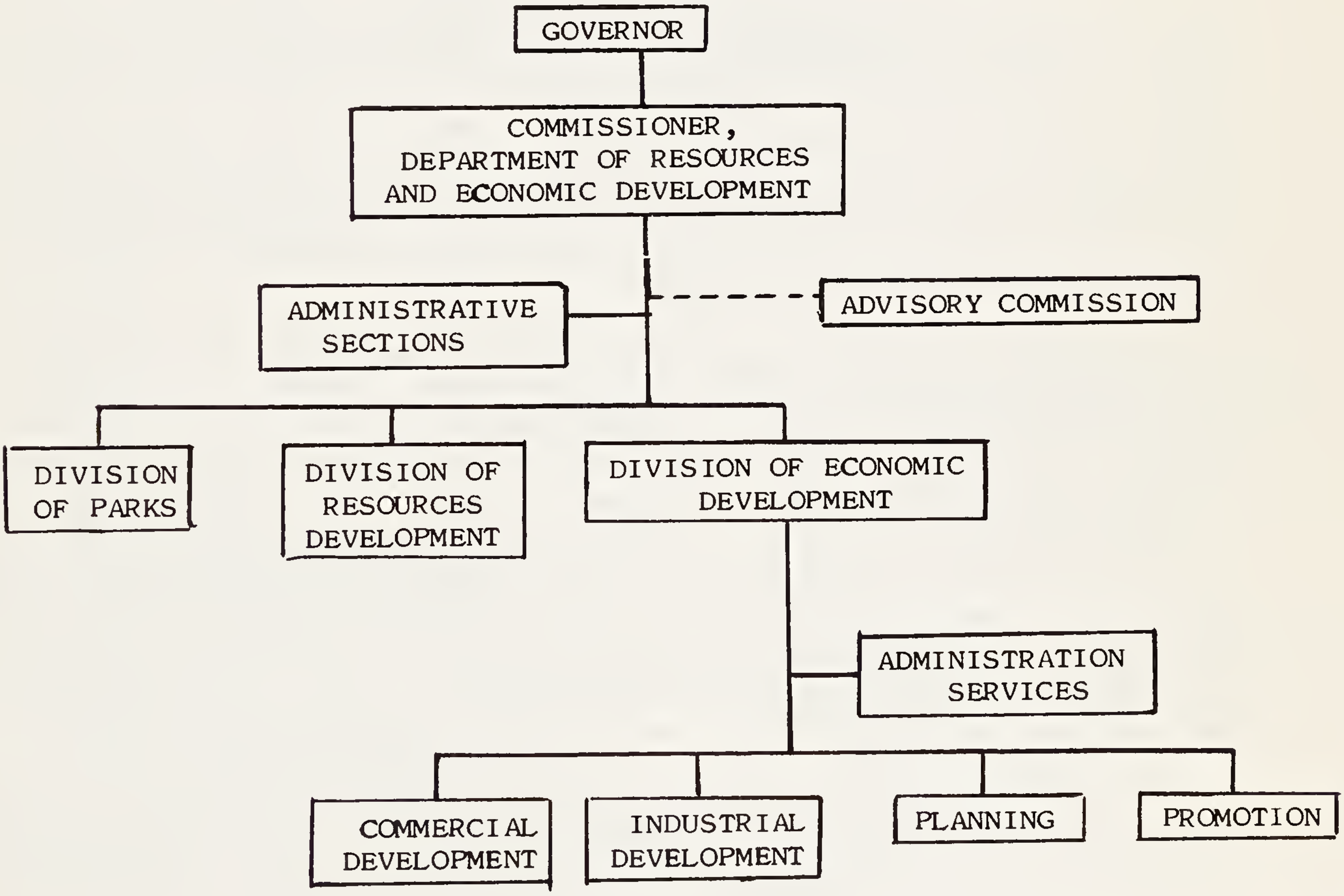
1. The Planning and Development Agency

The main planning and development agency is the Department of Resources and Economic Development, headed by a Commissioner. A seven-member Advisory Commission reports to his office, and an administrative section supports the Department's operations.

The Department is divided into three operating divisions, the Division of Parks, Division of Resources Development, and Division of Economic Development. The Division of Resources Development is responsible for state forest lands, forest research, forest pest and disease control, fire control, and the state nursery. There is a separate Department of Fish and Game.

The Division of Economic Development is in turn divided into four subdivisions: Commercial Development, Industrial Development, Planning and Promotion. The Industrial Development Division employs a Director and five additional professional staff. The Planning Division employs a Director and give professional personnel. In addition, there are two planning interns, and a part-time geologist who serves as state geologist.

Organization of Main Agency


GOVERNOR
COMMISSIONER, DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
ADMINISTRATIVE SECTIONS
ADVISORY COMMISSION
DIVISION OF PARKS
DIVISION OF RESOURCES DEVELOPMENT
DIVISION OF ECONOMIC DEVELOPMENT
ADMINISTRATION SERVICES
COMMERCIAL DEVELOPMENT
INDUSTRIAL DEVELOPMENT
PLANNING
PROMOTION

2. Economic Development

Economic development activities are primarily the responsibility of Division of Industrial Development and the Division of Planning. The Division of Industrial Development maintains formal or informal liaison with other state agencies, is a member of advisory groups concerned with development questions, and offers services to local and regional development groups in the state. The Planning Division has economic research and planning for development functions.

a. State-Level Development Organizations. New Hampshire has established two state-level development organizations: The New Hampshire Business Development Corporation, a state-wide development credit corporation operating under a special state charter; and the New Hampshire Industrial Park Authority. The former is an autonomous corporation. The latter is a state agency authorized to: 1) make loans to local development corporations, 2) insure industrial mortgages, and 3) construct industrial plants on a speculative basis, for lease or sale.

The Commissioner of the Department of Resources and Economic Development is an ex officio member of the Park Authority, and by executive order, the Authority has recently been designated as an advisory body to the Division of Industrial Development.

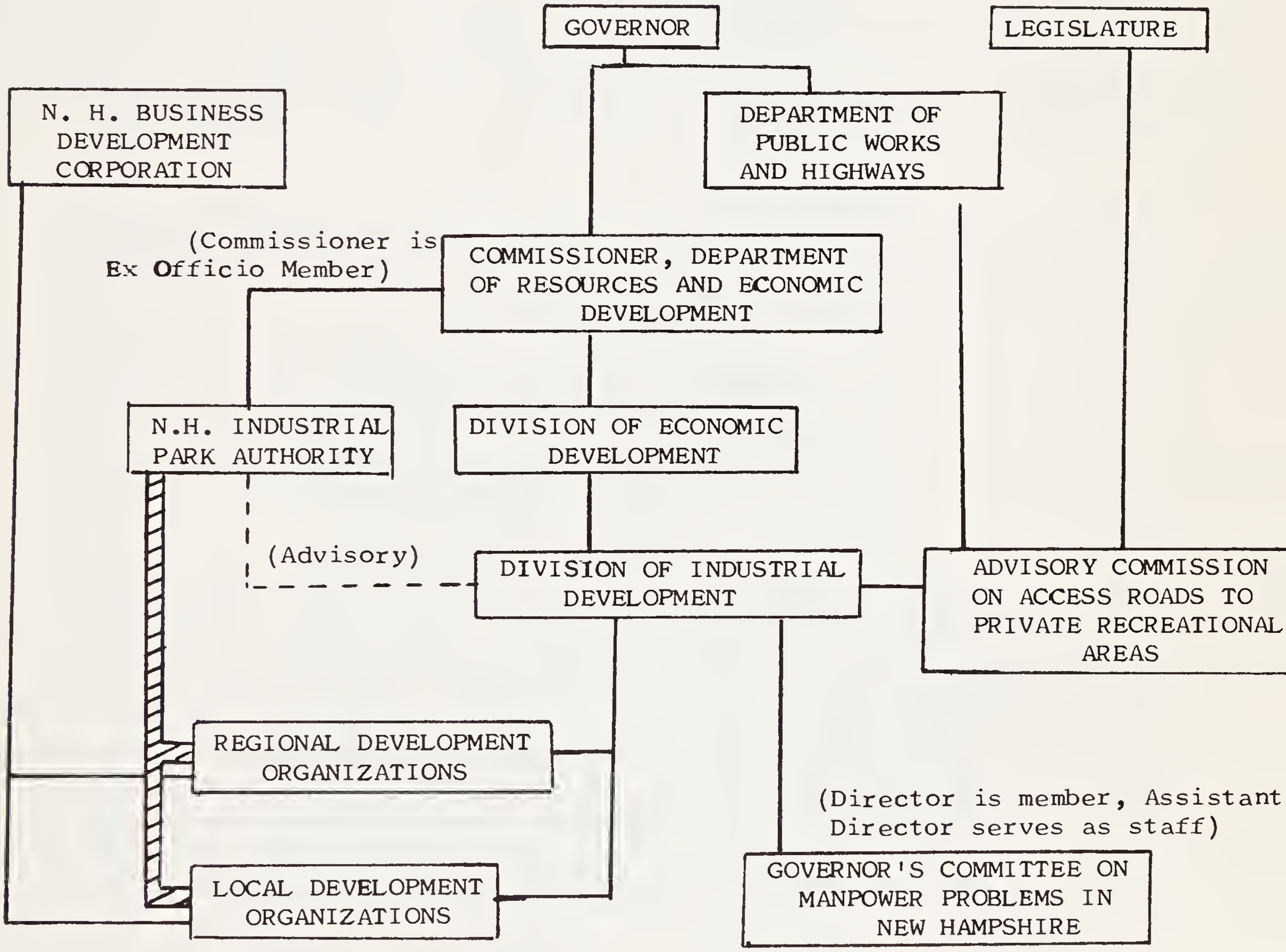
b. Local and Regional Development Groups. In addition to its other functions, the Division of Industrial Development offers services to local and regional development groups within the state. Such assistance usually takes the form of aid in organizing a local development organization and program, and cooperation in working with industrial prospects. The Division also cooperates with these local and regional groups, with the State Business Development Corporation, and the State Industrial Park Authority, in providing financing assistance to new or expanded industry.

At least eight of the local development organizations employ professional industrial agents, those in: Concord, Dover, Keene, Manchester, Nashua, Newmarket, Portsmouth, and Lebanon. Manchester employs two agents. At least three of these organizations indicate by their titles that they are regional in nature: Concord Regional Development Corporation, Keene Regional Industrial Foundation, and Upper Valley Development Council. This last is also interstate in nature, and required special legislation for its establishment. It covers the Lebanon and Hanover areas of New Hampshire, and White River Junction area of Vermont. Although their titles do not reflect it, a number of the other development organizations -- such as the Manchester Industrial Council -- may also be concerned with regional development.

c. Advisory Groups and Inter-Agency Liaison. Two advisory groups have been established to assist in development programming: the Advisory Commission on Access Roads to Private Recreational Areas, and the Governor's Committee on Manpower Problems in New Hampshire (i.e. industrial manpower). The Director of the Division of Industrial Development is a member of both advisory groups, and the Assistant Director serves as staff to the Governor's Committee. Membership of the Advisory Committee on Access Roads includes representatives of the Department of Public Works and Highways and of the state legislature.

The Division of Industrial Development maintains informal but close working relations with other state agencies. Capital projects of the Departments of Public Works and Highways, and Education, are usually coordinated with the Division's activities. Close relations are also maintained with the Department of Labor.

Development Organization


GOVERNOR
LEGISLATURE
N. H. BUSINESS DEVELOPMENT CORPORATION
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
(Commissioner is Ex Officio Member)
COMMISSIONER, DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
N.H. INDUSTRIAL PARK AUTHORITY
DIVISION OF ECONOMIC DEVELOPMENT
(Advisory)
DIVISION OF INDUSTRIAL DEVELOPMENT
ADVISORY COMMISSION ON ACCESS ROADS TO PRIVATE RECREATIONAL AREAS
REGIONAL DEVELOPMENT ORGANIZATIONS
(Director is member, Assistant Director serves as staff)
LOCAL DEVELOPMENT ORGANIZATIONS
GOVERNOR'S COMMITTEE ON MANPOWER PROBLEMS IN NEW HAMPSHIRE

d. State-Level Development Activities. The state does not offer or authorize local government units to offer any special tax incentives to new industry. In fact, one New Hampshire tax -- a stock in trade (inventory) tax -- may have a somewhat negative effect. One reason for interstate development activity in the Lebanon - White River Junction area is that a number of New Hampshire firms maintain warehouse facilities across the state line, in Vermont.

The state authorizes local government units to issue revenue bonds for industrial development purposes.

3. Planning

The Division of Planning is responsible for state-wide planning, regional planning and planning assistance, and assistance to local planning boards and officials. The Division also maintains formal liaison with other state agencies concerned with the maintenance and use of state resources. The Division does not have responsibility for capital budgeting, but does review the acquisition, use, and sale of state lands through the state Council on Resources and Development. Formal liaison is also maintained with the state Port Authority, state Water Resources Board, and Water Pollution Control Commission.

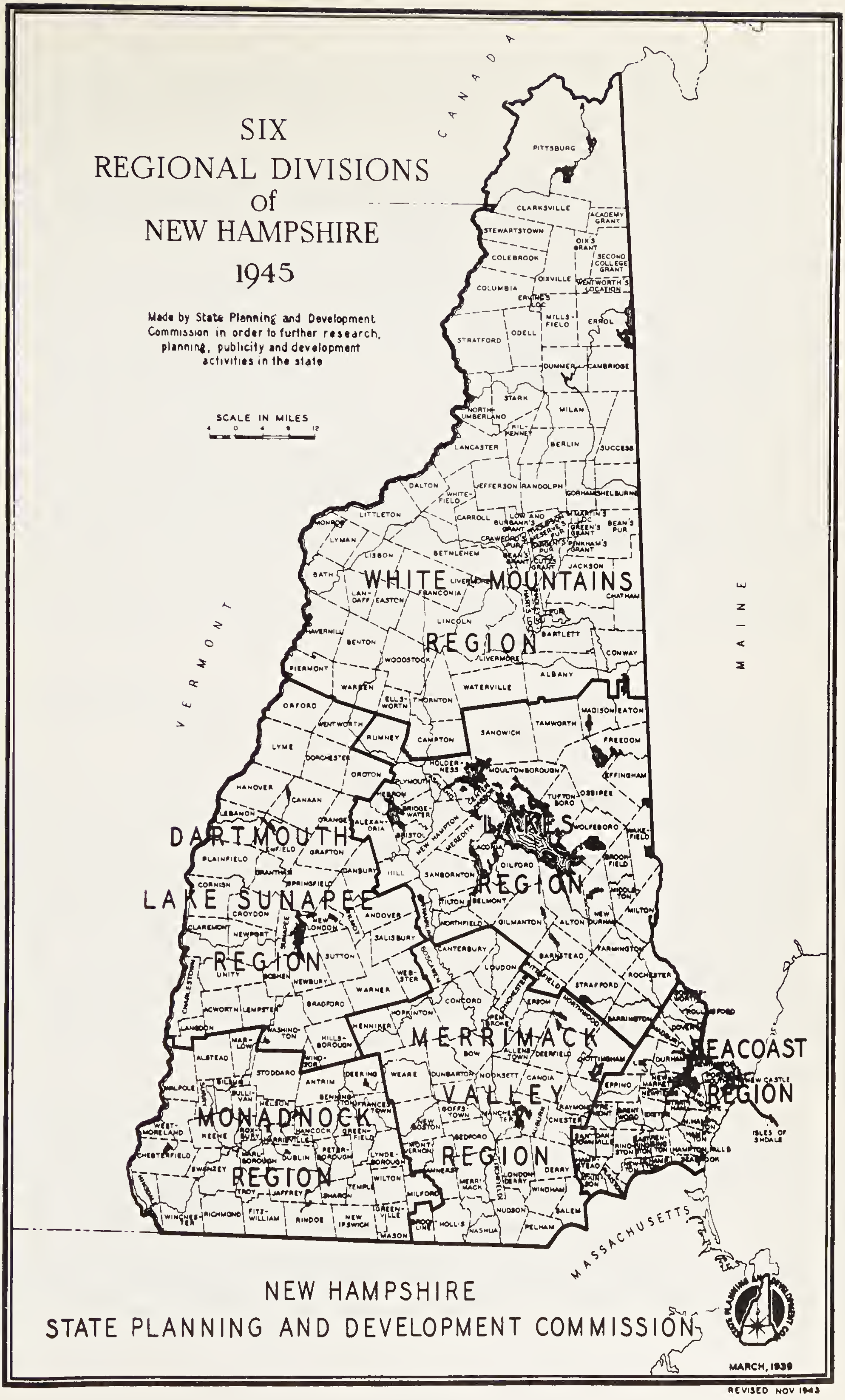
a. State-Level Planning. Responsibility for state planning is vested in the Division of Planning. In 1963, the state established the New Hampshire State Planning Project, financed in part by a "701" grant from the H. H. F. A., and The Director of the Division took a leave of absence to direct the Project. Because New Hampshire is so largely a rural state, emphasis of the project was upon land, water, and recreation. Upon completion of the project, the director returned to the Division of Planning. Publication of the Project's reports is currently in process. A list of those which have appeared to date may be found in the bibliography to this section. Although technically responsible to the Council on Resources and Development, the Project reported directly to the Governor. Its reports are the state plan.

b. Regional Planning. In 1933, the New Hampshire Planning Board divided the state into six regions for planning purposes: White Mountains Region (essentially the northern two-fifths of the state), Dartmouth-Lake Sunapee Region, Monadnock Region, Lakes Region, Merrimack Valley Region, and Seacoast Region. (See map) Today, the Division of Planning is experimenting with three types of planning regions in three very different parts of the state; one on the basis of rural counties, a second centering about a metropolitan area, and the third based upon the populous seacoast region, stretching up into York County, Maine. In addition, the state has enacted legislation enabling local communities to join in the formation of regional planning agencies.

i. The County Approach. An attempt is being made to develop planning regions based upon county organization in Grafton and Coos Counties, in the middle-western and northern parts of the state. The counties are adjoining,

SIX REGIONAL DIVISIONS of NEW HAMPSHIRE 1945

Made by State Planning and Development Commission in order to further research, planning, publicity and development activities in the state



SCALE IN MILES
4 0 4 8 12
CANADA
VERMONT
MAINE
MASSACHUSETTS
WHITE MOUNTAINS REGION
DARTMOUTH LAKE SUNAPEE REGION
LAKES REGION
MERRIMACK VALLEY REGION
MONADNOCK REGION
SEACOAST REGION
ISLES OF SHOALS
PITTSBURG
CLARKSVILLE
ACADEMY GRANT
STEWARTSTOWN
DIX'S GRANT
SECOND COLLEGE GRANT
COLEBROOK
DIXVILLE
WENTWORTH'S LOCATION
COLUMBIA
ERVING'S LOC
MILLSFIELD
ERROL
STRATFORD
ODELL
DUMMER
CAMBRIDGE
STARK
NORTHUMBERLAND
MILAN
KILKENNEY
BERLIN
SUCCESS
LANCASTER
DALTON
JEFFERSON
RANDOLPH
GORHAM
SHELBURNE
WHITEFIELD
LITTLETON
CARROLL
LOW AND BURBANK'S GRANT
MARTIN'S LOC
GREEN'S GRANT
BEAN'S PUR
PINKHAM'S GRANT
MONROE
LYMAN
CRAWFORD'S PUR
LISBON
BETHLEHEM
CUTTS GRANT
JACKSON
BATH
LANDAFF
EASTON
FRANCONIA
LIVERMORE
CHATHAM
LINCOLN
HAVERHILL
BENTON
BARTLETT
WOODSTOCK
CONWAY
PIERMONT
ALBANY
WARREN
WATERVILLE
ELLSWORTH
THORNTON
MADISON
EATON
ORFORD
WENTWORTH
SANDWICH
TAMWORTH
RUMNEY
CAMPTON
FREEDOM
LYME
DORCHESTER
HOLDERNESS
MOULTONBOROUGH
EFFINGHAM
GROTON
PLYMOUTH
HANOVER
CANAAN
HEBRON
ASHLAND
TUFTONBORO
OSSIPEE
BRIDGEWATER
CENTER HARBOR
LEBANON
ORANGE
ALEXANDRIA
WOLFEBORO
WAKEFIELD
BRISTOL
NEW HAMPTON
MEREDITH
ENFIELD
GRAFTON
LACONIA
PLAINFIELD
GILFORD
BROOKFIELD
GRANTHAM
SPRINGFIELD
DANBURY
HILL
SANBORNTON
CORNISH
MIDDLETON
CROYDON
ANDOVER
TILTON
BELMONT
NEW DURHAM
MILTON
CLAREMONT
NEWPORT
NEW LONDON
WILMOT
SUNAPEE
SALISBURY
FRANKLIN
NORTHFIELD
GILMANTON
ALTON
SUTTON
CANTERBURY
BARNSTEAD
FARMINGTON
UNITY
GOSHEN
NEWBURY
WEBSTER
BOSCAWEN
LOUDON
CHARLESTOWN
WARNER
PITTSFIELD
CHICHESTER
STRAFFORD
ROCHESTER
ACWORTH
LEMPSTER
BRADFORD
CONCORD
NORTHWOOD
EPSOM
LANGDON
WASHINGTON
HENNIKER
HOPKINTON
PEMBROKE
BARRINGTON
DOVER
HILLSBOROUGH
MARLOW
ALSTEAD
WINDSOR
BOW
ALLENSTOWN
DEERFIELD
NOTTINGHAM
LEE
DURHAM
STODDARD
ANTRIM
DEERING
WEARE
DUNBARTON
HOOKSETT
CANDIA
EPPING
NEW CASTLE
WALPOLE
GILSUM
SULLIVAN
NELSON
BENNINGTON
FRANCESTOWN
GOFFSTOWN
MANCHESTER
RAYMOND
FREMONT
WESTMORELAND
KEENE
ROXBURY
HARRISVILLE
HANCOCK
GREENFIELD
NEW BOSTON
BEDFORD
AUBURN
CHESTER
SANDOWN
DANVILLE
CHESTERFIELD
MARLBOROUGH
DUBLIN
PETERBOROUGH
LYNDEBOROUGH
MONT VERNON
DERRY
HAMPTON
HAMPTON FALLS
SEABROOK
SWANZEY
AMHERST
LONDONDERRY
TROY
JAFFREY
TEMPLE
WILTON
MERRIMACK
WINDHAM
HINSDALE
SHARON
MILFORD
LITCHFIELD
HUDSON
SALEM
WINCHESTER
RICHMOND
FITZWILLIAM
RINDGE
NEW IPSWICH
GREENVILLE
BROOKLINE
HOLLIS
NASHUA
PELHAM
MASON

NEW HAMPSHIRE

STATE PLANNING AND DEVELOPMENT COMMISSION

MARCH, 1939

REVISED NOV 1943

and their western borders are the western border of the state, from Lebanon to the Canadian border. As counties are, generally speaking, a weaker unit of government in New England than in the rest of the country, the organizational structure being relied upon is not that of county officers, but that of the RAD committee established in each of the counties under the Rural Area Development program of the U. S. Department of Agriculture. The committees are composed of representatives from each of the participating towns in each county. These RAD committees also serve as the ARA committee under the old Area Redevelopment Administration program of the U. S. Department of Commerce. Although there is no legal designation of these committees, or the counties, as planning committees or planning regions, the Division of planning is cooperating with the committees for planning purposes.

Grafton County was the first in which this approach was tested, as a pilot area. Financed in part by a "701" grant, a private firm served as consultant to the Sub-Committee on Economic Development and Planning of the Grafton County Rural Area Development Committee. In 1963 an Economic Base Study of Grafton County was prepared by a consultant to the Department of Resources and Economic Development. Preparation of the study has subsequently permitted informed testimony on highway and flood control projects, and the preparation of grant requests for projects under various federal programs, a number of which had been approved by December, 1963.

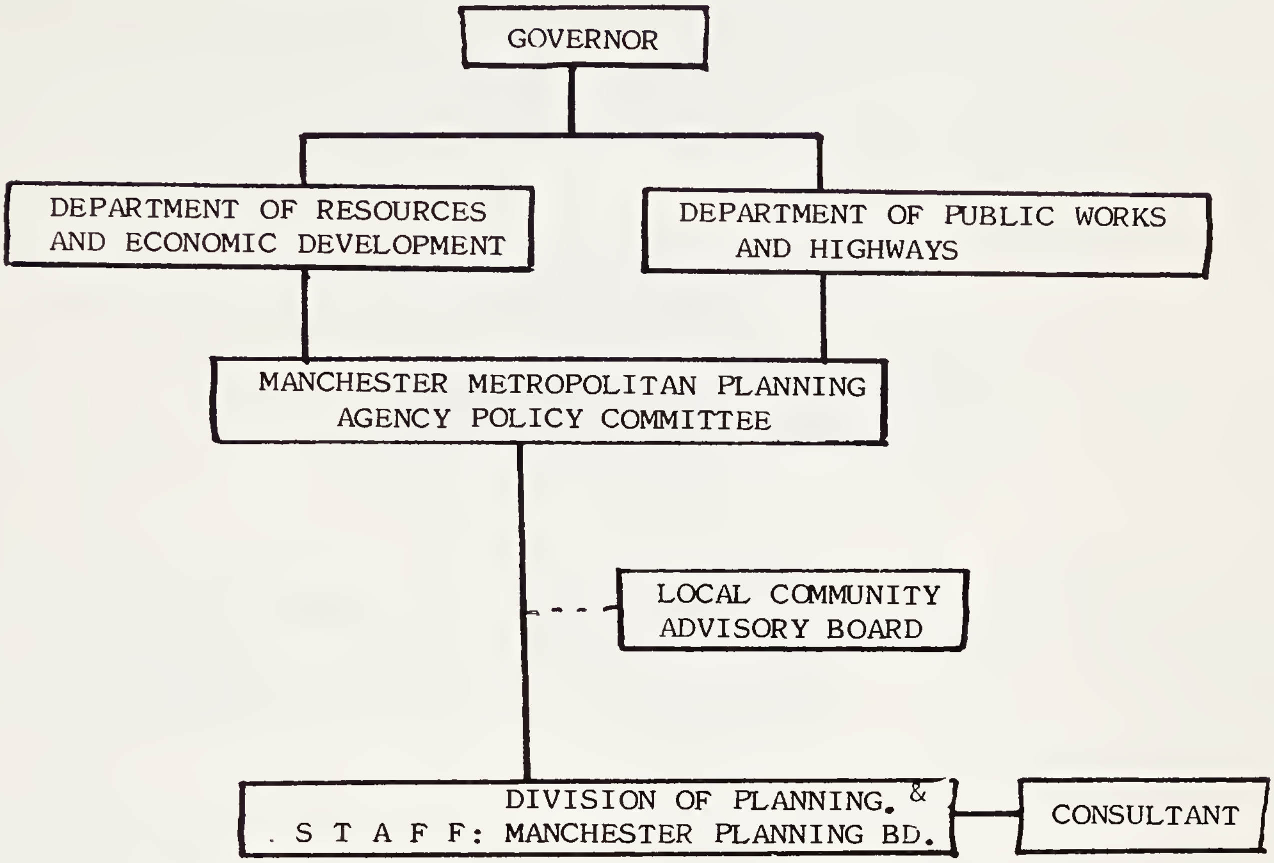
ii. The Metropolitan Area Approach. Manchester is the only SMSA in New Hampshire. Although the surrounding towns have Planning Boards, Manchester is the only one with a professional planning staff.

Work on the Manchester Metropolitan Planning Study began in the summer of 1964, initially to meet planning requirements for federal highway funds. The original design of the project called for joint funding by the U. S. Housing and Home Finance Agency and the U. S. Bureau of Public Roads, with state participation and administration through the Department of Resources and Economic Development and Department of Public Works and Highways. Due to financing difficulties, however, the first portion of the study was carried on by the Department of Public Works and Highways, alone -- using funds from the BPR. The second stage of the study has been financed with funds from the U. S. Department of Housing and Urban Affairs through the Department of Resources and Economic Development.

The legally established organization is the Manchester Metropolitan Planning Agency. It is headed by a policy committee, on which the Commissioner of the Department of Resources and Economic Development and the Commissioner of Public Works and Highways both serve. In addition, it is supported by an Advisory Committee, composed of representatives of the political jurisdictions in the metropolitan area: the city of Manchester, and towns of Auburn, Bedford, Goffstown, and Hooksett. Staff work is done by members of the State Division of Planning, Manchester Planning Board, and a consultant firm.

As of December, 1965, a regional land use plan had been prepared, as well as reports on population, community facilities, and an economic analysis. Work was in process on a regional transportation model. (See bibliography for publications.)

Organization of the Manchester Metropolitan Planning Study

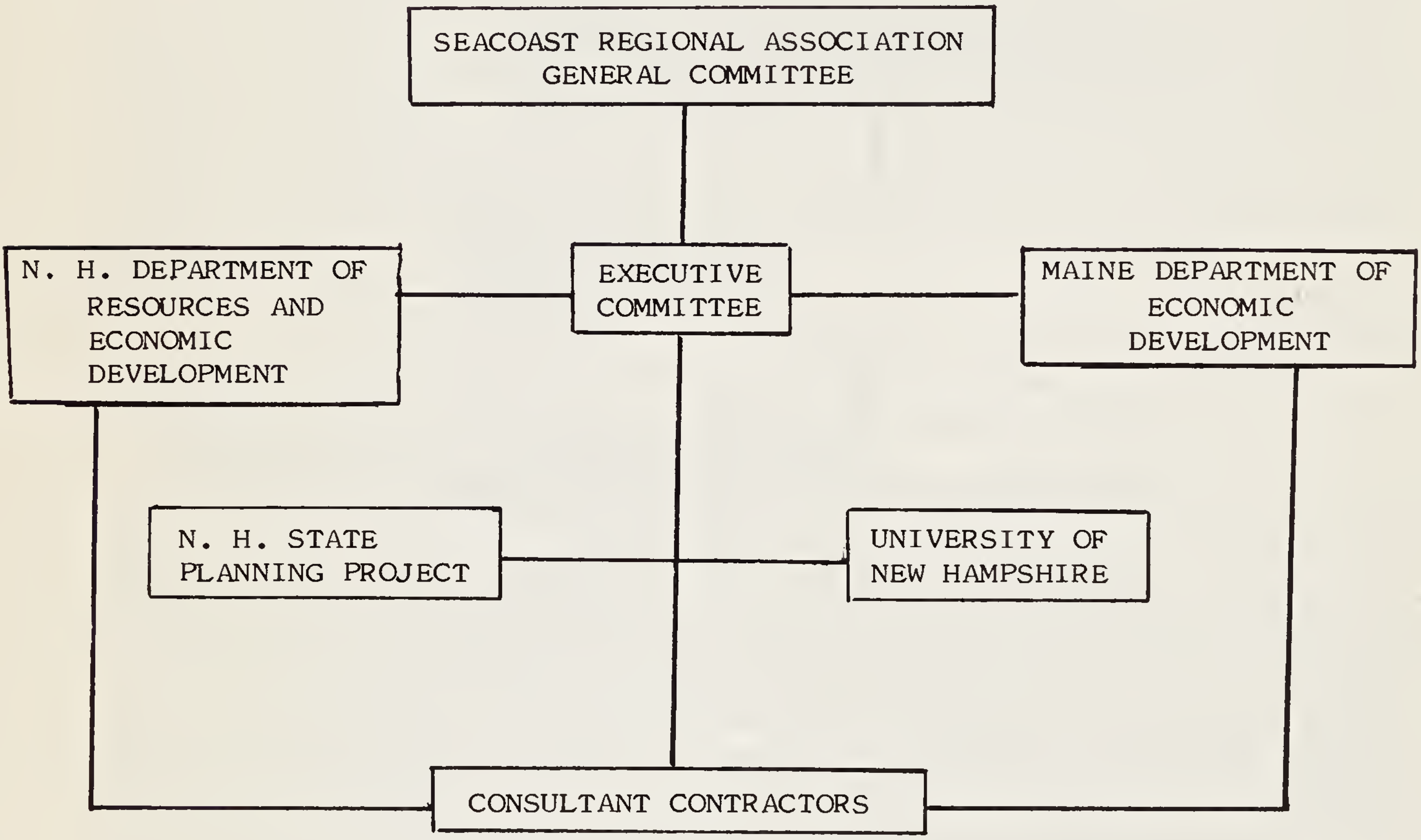

GOVERNOR
DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
MANCHESTER METROPOLITAN PLANNING AGENCY POLICY COMMITTEE
LOCAL COMMUNITY ADVISORY BOARD
DIVISION OF PLANNING & STAFF: MANCHESTER PLANNING BD.
CONSULTANT

iii. The Seacoast Regional Planning Project. The Seacoast Regional Planning Project was initiated in 1964 by representatives of business and local government in the "seacoast region" of New Hampshire and lower York County, Maine. Following a meeting at the University of New Hampshire in January of that year, a working committee was organized composed of the planning agencies of New Hampshire and Maine, the Seacoast Regional Association, York County, several cities, the University of New Hampshire, and several development organizations in the region. The Seacoast Regional Development Association, a non-profit corporation, was established to administer the study.

A General Committee of the Association, composed of representatives of participating local jurisdictions, has policy making responsibility. An Executive Board, appointed by the Committee, handles administrative details. The New Hampshire Department of Resources and Economic Development and the Maine Department of Economic Development both participate under legislation authorizing them to offer local planning assistance. Federal funds for the Project have been received under separate "701" grants to the two state agencies. Some staff time is contributed by the two state planning agencies, and other staff work is contracted to the University of New Hampshire and other consultants.

The Project calls for a broad, two-phase study of the "seacoast region" leading to development and implementation of land use, transportation, public facilities, and renewal and development plans. Phase I of the study has been contracted to the University of New Hampshire: an inventory of economic base factors, physical and social resources, population, governmental structure, legal problems, and organizational needs looking towards an action program. This phase is currently in process, and is expected to reach completion November 1, 1966.

(Policy Board: Representatives
of Political jurisdiction)

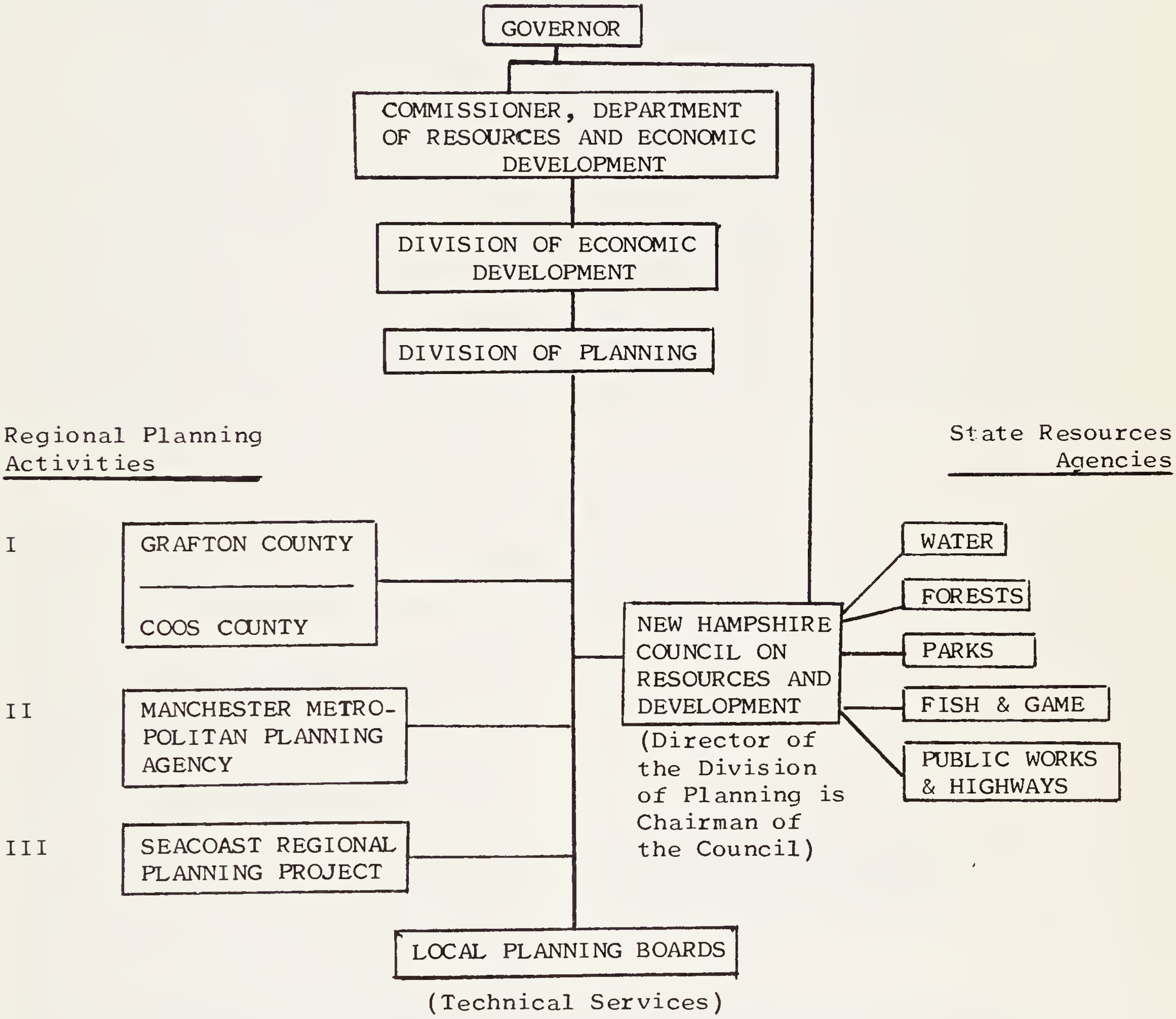

SEACOAST REGIONAL ASSOCIATION GENERAL COMMITTEE
N. H. DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
EXECUTIVE COMMITTEE
MAINE DEPARTMENT OF ECONOMIC DEVELOPMENT
N. H. STATE PLANNING PROJECT
UNIVERSITY OF NEW HAMPSHIRE
CONSULTANT CONTRACTORS

c. Local Planning. There are twelve cities and 246 towns in New Hampshire. Six of the cities have a professional planning staff. One-hundred-forty cities and towns have citizen planning boards, but no professional planner. Forty cities and towns have received "701" planning funds since 1954.

The Division of planning administers the "701" programs, offers some technical services to most cities and towns, but provides extensive staff time to those cities and towns having neither a professional planning staff or a "701" planning program.

d. The New Hampshire Council on Resources and Development. The Council has been established to provide coordination and liaison among state agencies responsible for the care and utilization of state lands. All major agencies with a responsibility in this area are members, and the law requires attendance by representatives at the agency head level. The Director of the Division of Planning is Ex Officio Chairman of the Council. The Council is empowered to review the acquisition, use, and sale of state lands.

Planning Organization


GOVERNOR
COMMISSIONER, DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT
DIVISION OF ECONOMIC DEVELOPMENT
DIVISION OF PLANNING
Regional Planning Activities
I
GRAFTON COUNTY
COOS COUNTY
II
MANCHESTER METRO-POLITAN PLANNING AGENCY
III
SEACOAST REGIONAL PLANNING PROJECT
LOCAL PLANNING BOARDS
(Technical Services)
NEW HAMPSHIRE COUNCIL ON RESOURCES AND DEVELOPMENT
(Director of the Division of Planning is Chairman of the Council)
State Resources Agencies
WATER
FORESTS
PARKS
FISH & GAME
PUBLIC WORKS & HIGHWAYS

4. Capital Budgeting

Capital budgeting is not a function of the main agency. Hillhouse and Howard describe the process in New Hampshire as follows:

> "The Governor's Budget Book includes operating and capital-improvement sections which cover the next biennium. The state university's capital construction is not included in the capital-improvement section. Highway buildings and other special funds (such as fish and game funds, aeronautics commission funds, etc.) are included in the budget recommendations. Highway construction is completely exempt. Six-year projections of estimated needs are prepared jointly by requesting agencies, the Public Works Division, and the Division of Budget and Control, but these are not published in a central program form nor revised as a document biennially." 1/

1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Governments, 1963) p. 157.

C. Vermont

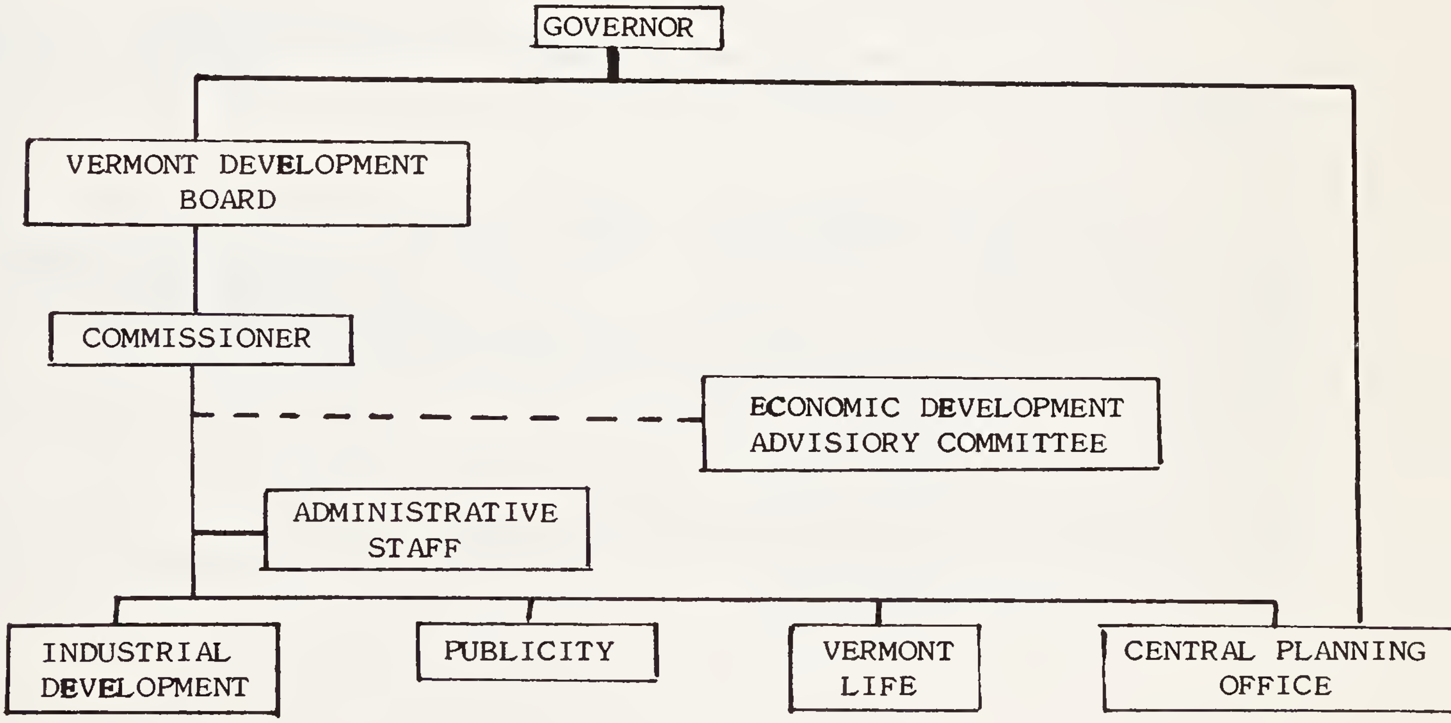
1. The Planning and Development Agency

The main planning and development agency is the Vermont Development Department. The Department is headed by a five-member board, appointed by the Governor to represent a geographic and economic cross-section of the state. The executive head of the Department is a Commissioner, appointed by the Board.

The Department is divided into four main divisions: Industrial Development, Publicity, the Central Planning Office, and the office of *Vermont Life* magazine. In addition, the Commissioner is supported by a small administrative staff, and advised by two Economic Development Advisory Committees, one for industrial development and one for vacation-travel promotion.

The position of the Central Planning Office in relation to the Department is somewhat unusual, and may be in a stage of transition. The planning division is administratively a part of the Department, and its staff is paid through the Department. By executive order, however, the Chief of Planning reports directly to the Governor, and the division prepares its own budget for submission directly to the Budget Office. Legislation to transfer the planning division from the Development Department to the Department of Administration has failed to pass the state legislature, (H. 28: An Act to Create a Central Planning Division in the Department of Administration), and was subsequently withdrawn. The potentially divisive effect of this situation is offset, however, by the maintenance of close working relations between the Commissioner and the Chief of Planning and his staff.

Main Agency Organization


GOVERNOR
VERMONT DEVELOPMENT BOARD
COMMISSIONER
ECONOMIC DEVELOPMENT ADVISIORY COMMITTEE
ADMINISTRATIVE STAFF
INDUSTRIAL DEVELOPMENT
PUBLICITY
VERMONT LIFE
CENTRAL PLANNING OFFICE

2. Economic Development

Economic development activities are primarily the responsibility of the Department of Economic Development and its Division of Industrial Development. The Department maintains liaison with other state agencies and offers services and assistance to regional and local development groups.

a. State-Level Development Organizations. Vermont has established two state-level development organizations: The Vermont Business Development Corporation; a state-wide development credit corporation operating under a special state charter; and the Vermont Industrial Building Authority; a state agency authorized to guarantee industrial mortgages held by local development corporations, up to 90% of cost. The Director of the Division of Industrial Development is Recording Secretary of the Building Authority.

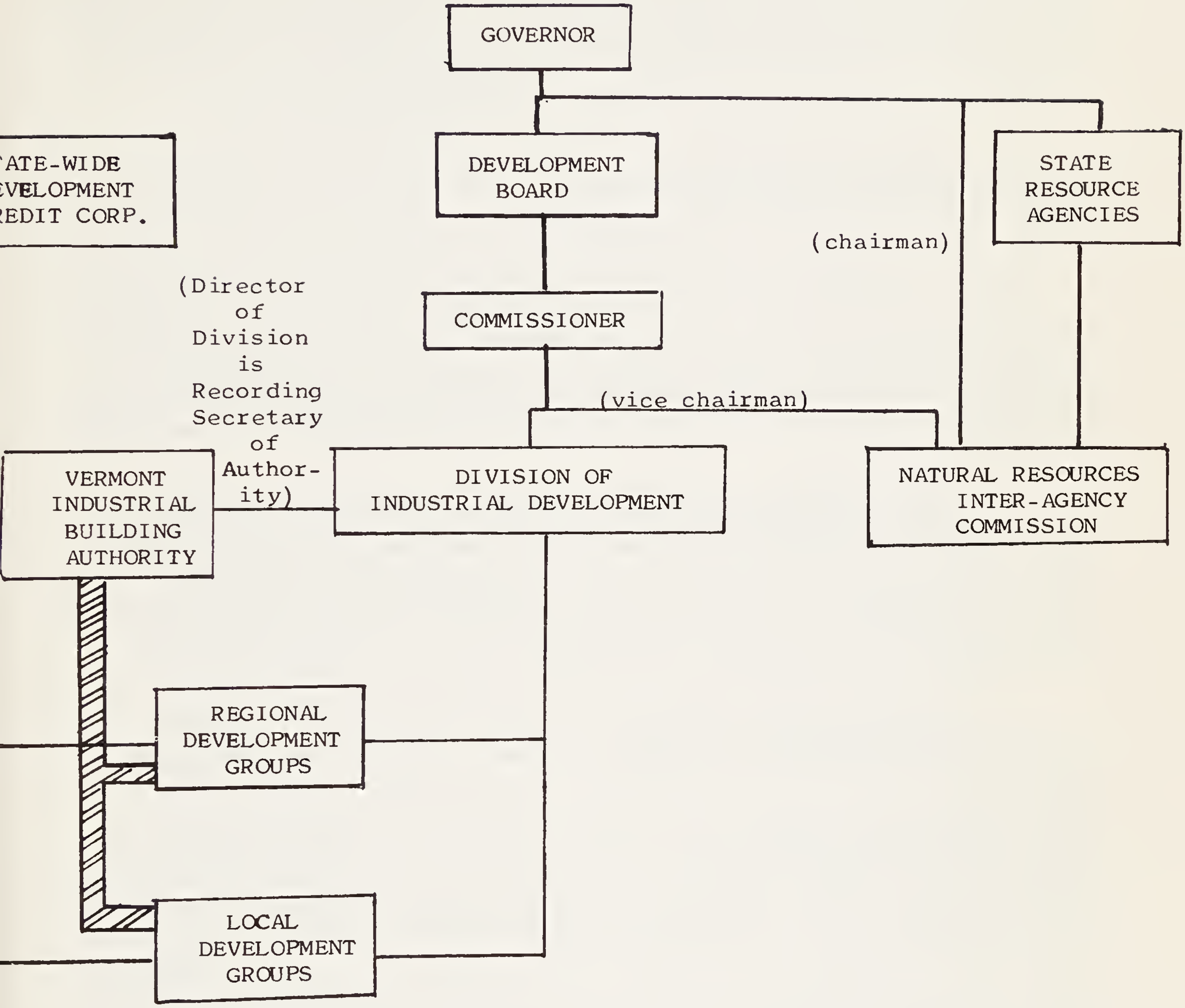
b. Local and Regional Development Groups. There are approximately fifteen local development corporations or similar organizations in the state, of which six are currently active. In addition to its other development functions, the Division of Industrial Development offers services to these groups, including assistance in establishing development organizations and programs, and cooperation in working with industrial prospects. The Department of Economic Development pays one half the cost of operating information booths in local communities.

In 1965 the legislature approved "An Act to Authorize a State Regional Development Program" (H. 224; No. 164, Laws of 1965). This legislation permits the grouping of local political jurisdictions in a development region. As a prerequisite, however, it requires that the proposed development region first prepare an overall plan pursuant to state legislation authorizing regional planning commissions. Thus regional development efforts must be coordinated with, and in fact be based upon, regional planning activities.

As noted in the New Hampshire section, the White River Junction area of Vermont is part of an interstate regional development organization which includes Lebanon and Hanover, New Hampshire.

c. Advisory Groups and Inter-Agency Liaison. The Commissioner of the Development Department is supported by an Economic Development Advisory Committee Board. Coordination of development functions with resource agencies is provided by the Natural Resources Inter-Agency Commission (established by legislative act), under the Chairmanship of the Governor. The Commissioner serves as Vice Chairman of the Inter-Agency Commission, and as acting chairman in the absence of the Governor. Seven other agencies are represented on the Commission: Agriculture, Fish and Game, Forests, Health, Highways, the Public Service Commission, and the Water Resources Commission. The Commissioner is also state liaison officer for the Bureau of Outdoor Recreation Program.

DEVELOPMENT ORGANIZATION


GOVERNOR
DEVELOPMENT BOARD
ATE-WIDE VELOPMENT EDIT CORP.
STATE RESOURCE AGENCIES
(chairman)
COMMISSIONER
(Director of Division is Recording Secretary of Authority)
(vice chairman)
VERMONT INDUSTRIAL BUILDING AUTHORITY
DIVISION OF INDUSTRIAL DEVELOPMENT
NATURAL RESOURCES INTER-AGENCY COMMISSION
REGIONAL DEVELOPMENT GROUPS
LOCAL DEVELOPMENT GROUPS

d. State-Level Development Activities. The state does not offer, or authorize local government units to offer, tax incentives for industrial development purposes -- in the sense that the term is usually understood. It does authorize local government units to offer a tax stabilization plan. H. 370 (no. 263, Laws of 1955), authorizes "municipal corporations....to enter into contracts with new industrial and commercial owners, lessees, bailees or operators....for the purpose of fixing and maintaining (the valuation of property and rate of taxation)....or for the purpose of fixing the amount in money which shall be paid as an annual tax upon such real and personal property.... for a period not to exceed ten years." Municipalities are also authorized to exempt certain machinery from taxation for the same period.

In addition, the state authorizes local government units to issue revenue bonds for industrial development purposes.

3. Planning

The Central Planning Office is responsible for state-wide planning, regional planning assistance, and local planning assistance. Formal liaison is maintained with other state agencies concerned with the maintenance and use of state lands, through the Natural Resources Inter-Agency Commission. The Planning Office is also in the process of assuming formal responsibility for capital budgeting.

a. State Level Planning. State legislation establishing the Vermont Development Commission (10 V.S.A. 2-3) does not specifically endow that agency with authority and responsibility for state planning. On May 11, 1961, however, an opinion prepared by the state Attorney General stated that other authorities and responsibilities granted to the agency both permitted and necessitated that it engage in state planning.

b. The State Plan. Subsequent to this ruling, the Planning Office initiated a three phase state planning operation. Phase I, which has been completed, was the inventory stage. Research was done, either under contract or under memoranda of agreement, by the University of Vermont, Norwich University, private consultants, the state Tax Department, State College Board, and the Budget and Management Section of the Division of Administration. Studies have been completed in such areas as: Economic Base, Population, Land use, Transportation, Finances, State Regions, and Facilities and Utilities. (See bibliography at end of state section.) Phase II, which is the planning stage, is currently in process. The following four plans are being prepared with the assistance, under memoranda of agreement, of the indicated agencies:

Land Use Plan	Recreation Plan	Facilities Plan	Transportation Plan
Agriculture Forest & Parks Industrial Dev. Health Water Resources University of Vt. Consultants	Fish and Game Forest and Parks Historic Site Commission State Recreation Board Water Resources Department University of Vt. Consultants	Dept. of Institutions Division of State Buildings St. College Bd. University of Vt. Consultants	Aeronautics Highways Public Service Commission University of Vt. Consultants

This use of other state agencies in Phases I and II of the Planning process, taken in conjunction with operations of the Natural Resources Inter-Agency Commission, indicates close and continuous coordination between the planning agency, development agency, and other related agencies of state government.

Phase III of the process will represent a transition in the state's handling of its capital budgeting function. In 1963, Hillhouse and Howard described the Vermont Capital budgeting process thus:

> Capital projects are budgeted on a biennial basis. They are requested by the departments and screened initially by the Board of State Buildings, which sends its recommendations to the budget staff, the Governor, and the Legislature. The program is entirely bond-financed. Highway construction, forest and park activities, historic sites, and the military department are excluded from these procedures. The projects are authorized by an appropriation act which is separate from the current budget act. Projects costing less than $15,000 are usually financed from current revenues; larger projects utilize bond proceeds. 1/

It is not clear, however, whether the capital budgeting functions of the Central Planning Office will replace or be in addition to the capital budgeting functions of the agencies listed above, nor whether some of the agencies whose capital expenditures were not included in this process in 1963 will now be brought into it.

c. Regional Planning. Attached is a map indicating the division of the state into six planning regions. Legislation pertaining to local and regional planning may be found in V. S. A., Title 24, Ch. 65. This legislation author-

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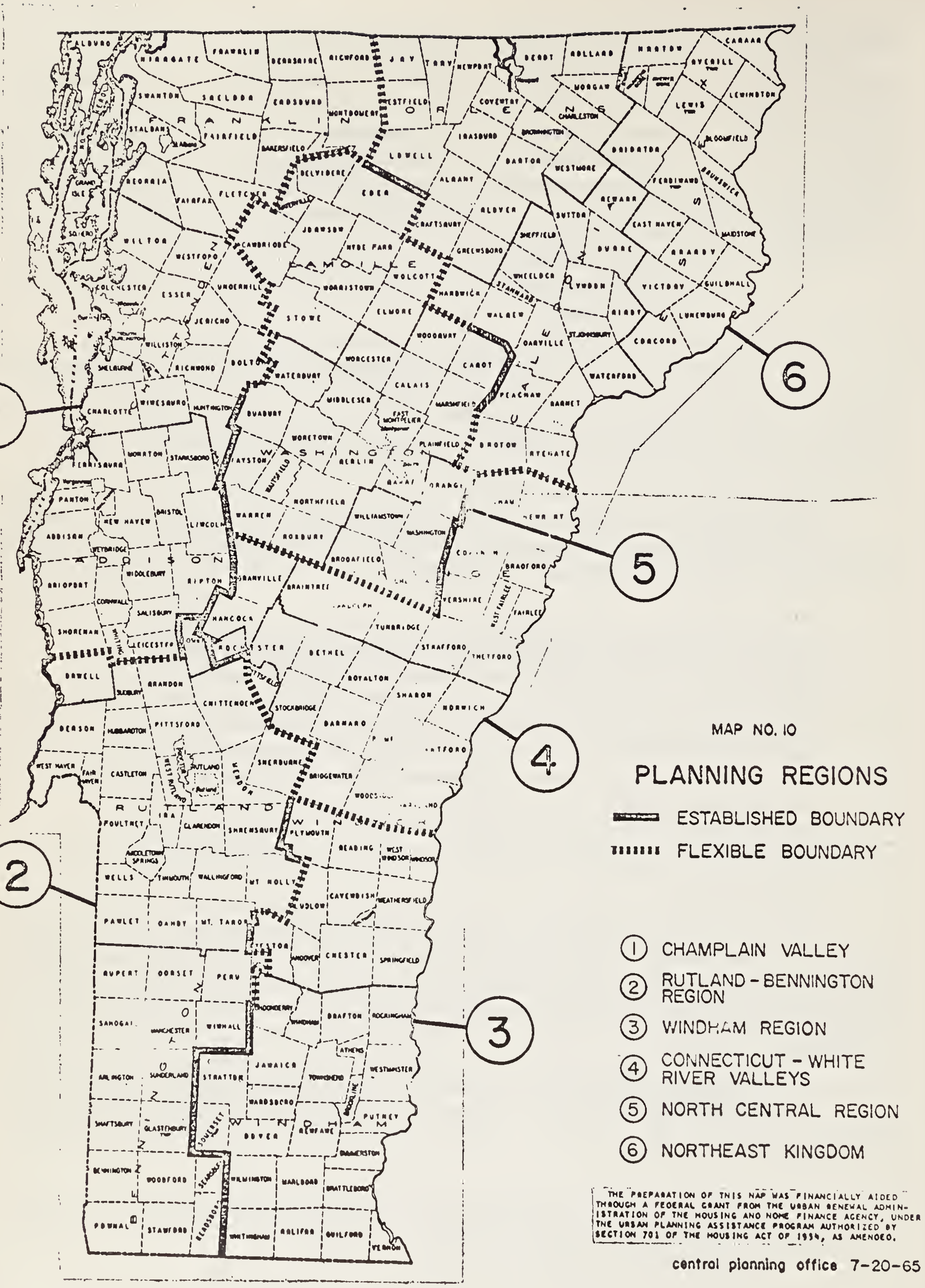
1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Government, 1963) pp. 160-161


1
2
3
4
5
6
FRANKLIN
ORLEANS
ESSEX
LAMOILLE
CHITTENDEN
CALEDONIA
WASHINGTON
ADDISON
ORANGE
RUTLAND
WINDSOR
BENNINGTON
WINDHAM

MAP NO. 10

PLANNING REGIONS

▬ ESTABLISHED BOUNDARY

▮▮▮▮▮▮ FLEXIBLE BOUNDARY

① CHAMPLAIN VALLEY
② RUTLAND - BENNINGTON REGION
③ WINDHAM REGION
④ CONNECTICUT - WHITE RIVER VALLEYS
⑤ NORTH CENTRAL REGION
⑥ NORTHEAST KINGDOM

THE PREPARATION OF THIS MAP WAS FINANCIALLY AIDED THROUGH A FEDERAL GRANT FROM THE URBAN RENEWAL ADMINISTRATION OF THE HOUSING AND HOME FINANCE AGENCY, UNDER THE URBAN PLANNING ASSISTANCE PROGRAM AUTHORIZED BY SECTION 701 OF THE HOUSING ACT OF 1954, AS AMENDED.

central planning office 7-20-65

izes the establishment of regional planning commissions by five or more municipalities in the various planning regions. Regional commissions are authorized to promote and coordinate the local planning efforts of participating municipalities, to advise them on the public financing of planning and development activities, and to cooperate with "the planning, legislative or executive authorities of neighboring states, regions, counties or municipalities" for overall coordination. Eligible regional planning commissions, in addition to technical assistance from the Central Planning Office, may receive state funds from the Planning Office with the proviso that state participation not exceed the amount raised by the regional commission, or one sixth of the total expenses of the commission.

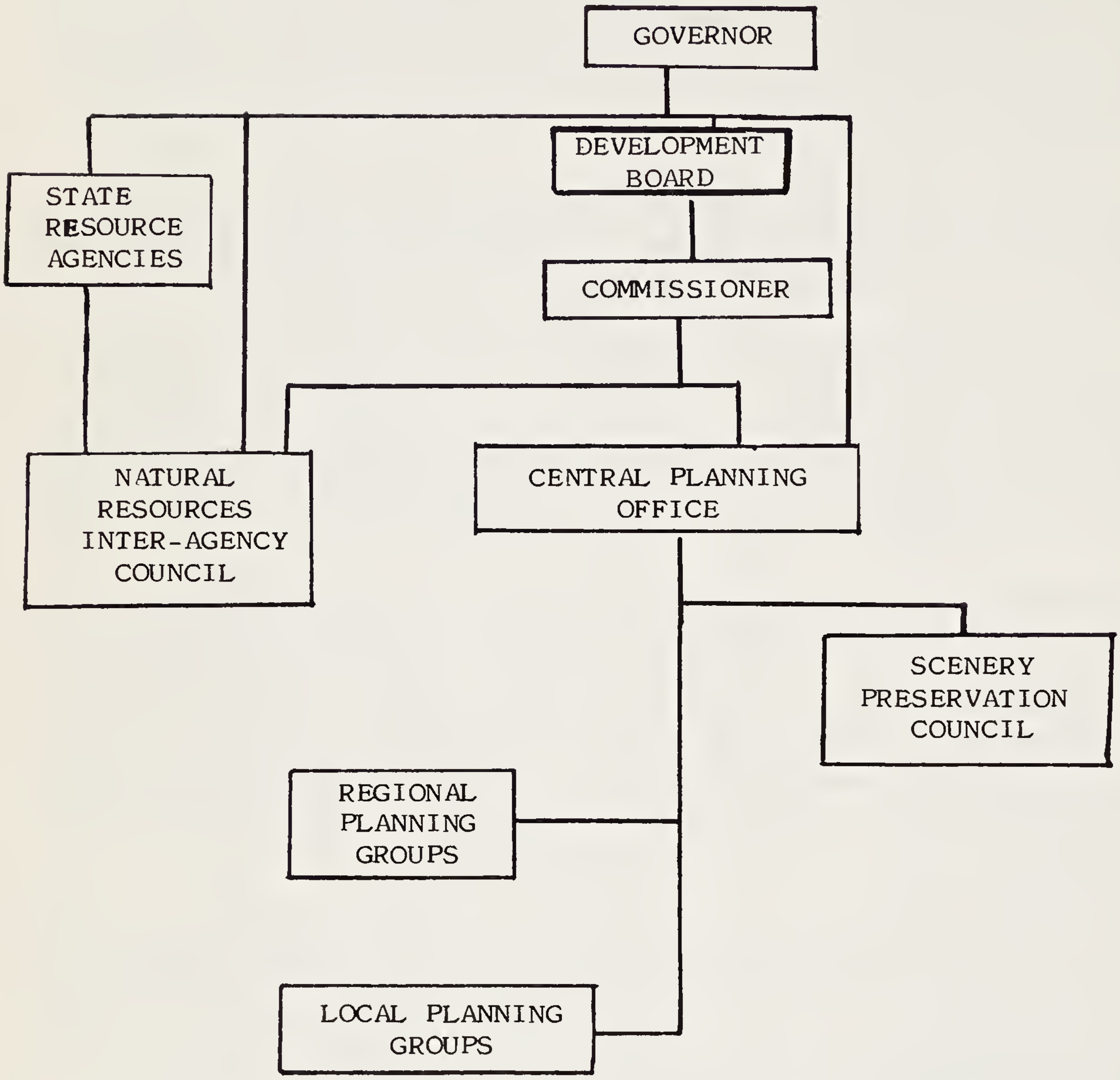
One region has already organized: the Windham Regional Planning Commission has received "701" funds, and employed a consultant. The other five regions are in various stages of organization pursuant to the act.

d. Local Planning. Forty-nine municipalities in the state currently have planning programs, either individually or as part of the Windham Regional Planning Region project. State financial assistance is not available for municipal planning activities, but the Central Planning Office administers municipal "701" programs, pays all administrative costs of these programs, and provides some technical assistance to municipalities.

e. Special Planning Projects. A $33,000 grant has been received from the American Conservation Association for a highway scenery preservation study (completed) and a study of the economics of scenery preservation (currently underway). The University of Vermont is currently preparing an economic forecasting model, under contract to the Planning Office. And discussions are being held with representatives of Maine, New Hampshire, and the New England Economic Research Foundation to explore the feasibility of an East-West highway for northern New England.

f. Advisory and Coordinating Agencies. In addition to the Natural Resources Inter-Agency Commission, a seven-member citizens' Scenery Preservation Council has been established within the Central Planning Office to assist in its planning for scenic corridors along highway routes. A Committee for Coordinating Local, Regional and State Planning is also being established.

Planning Organization


GOVERNOR
DEVELOPMENT BOARD
STATE RESOURCE AGENCIES
COMMISSIONER
NATURAL RESOURCES INTER-AGENCY COUNCIL
CENTRAL PLANNING OFFICE
SCENERY PRESERVATION COUNCIL
REGIONAL PLANNING GROUPS
LOCAL PLANNING GROUPS

D. Massachusetts

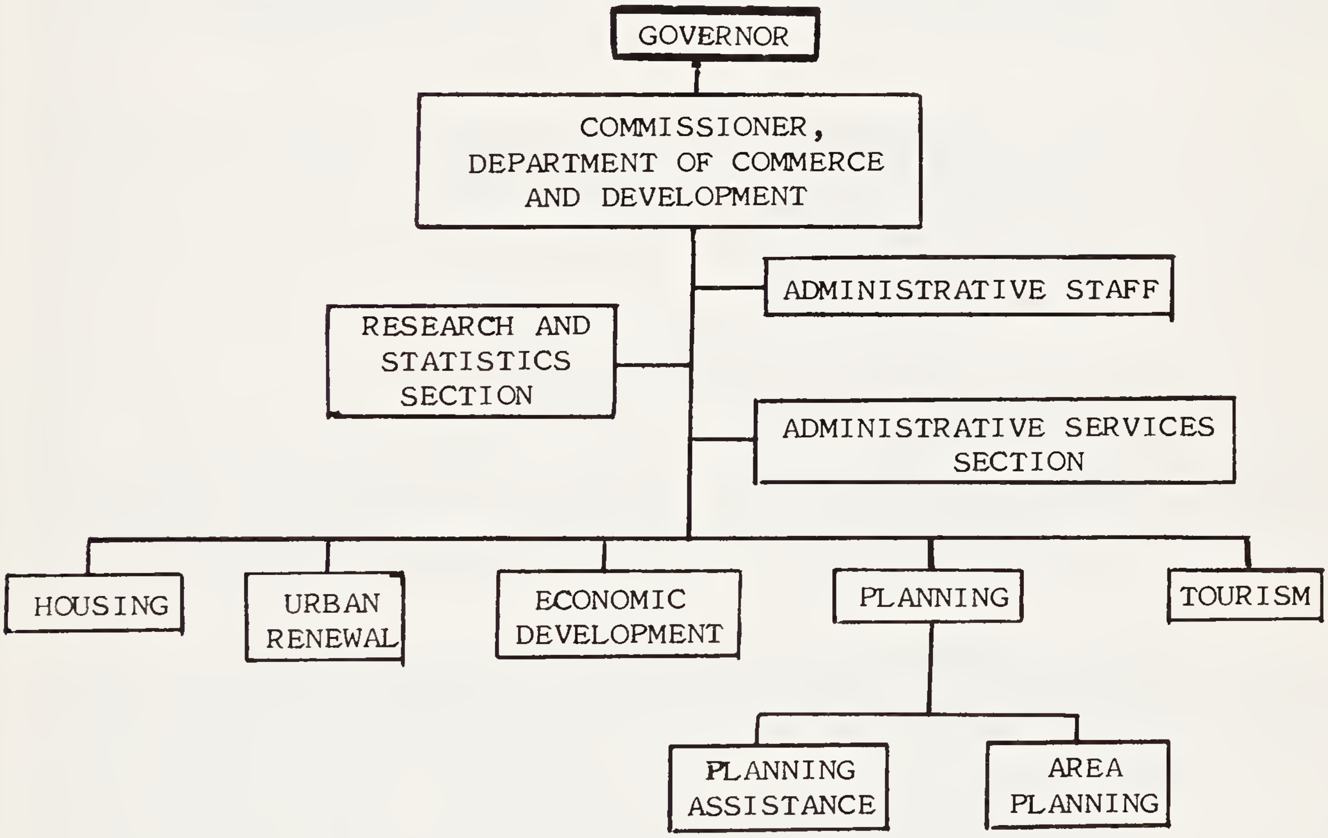
1. The Planning and Development Agency

The main planning and development agency is the Department of Commerce and Development, headed by a Commissioner. His office is supported by an administrative staff, an administrative services section, and a research and statistics section.

The Department is divided into five major divisions: Housing, Urban Renewal, Economic Development, Tourism, and Planning. Each division is headed by a Deputy Commissioner. Under the Deputy Commissioner of Economic Development, a Director of Commercial and Industrial Development heads a thirteen man professional staff. Under the Deputy Commissioner of Tourism a Director of Vacation Travel heads an eight man professional staff.

Under the Deputy Commissioner of Planning there are two subdivisions. The Director of Planning Assistance has a professional staff of thirteen. The Director of Area Planning has a professional staff of three.

Main Agency Organization


GOVERNOR
COMMISSIONER, DEPARTMENT OF COMMERCE AND DEVELOPMENT
ADMINISTRATIVE STAFF
RESEARCH AND STATISTICS SECTION
ADMINISTRATIVE SERVICES SECTION
HOUSING
URBAN RENEWAL
ECONOMIC DEVELOPMENT
PLANNING
TOURISM
PLANNING ASSISTANCE
AREA PLANNING

2. Economic Development

Economic development activities are primarily the responsibility of the Department of Commerce and Development through its Divisions of Economic Development and Tourism. The Division of Economic Development fosters and promotes the economic growth of the Commonwealth by conducting coordinated programs designed to achieve the industrial distribution and diversification necessary for the maximum utilization of the state's resources. The Division is divided into the following Bureaus:

Bureau of Commercial and Industrial Development whose operations are centered in three areas:

1. Assistance to Existing Industries and Communities
2. Acquisition of New Industry
3. Promotion and Stimulation of Municipal and Private Development Projects.

Women's Bureau which conducts a program to promote business opportunities and economic projects for women including business clinics.

New York Bureau which is a centrally located office in New York City established for the purpose of providing information on the industrial potential and vacation/travel attractions of Massachusetts.

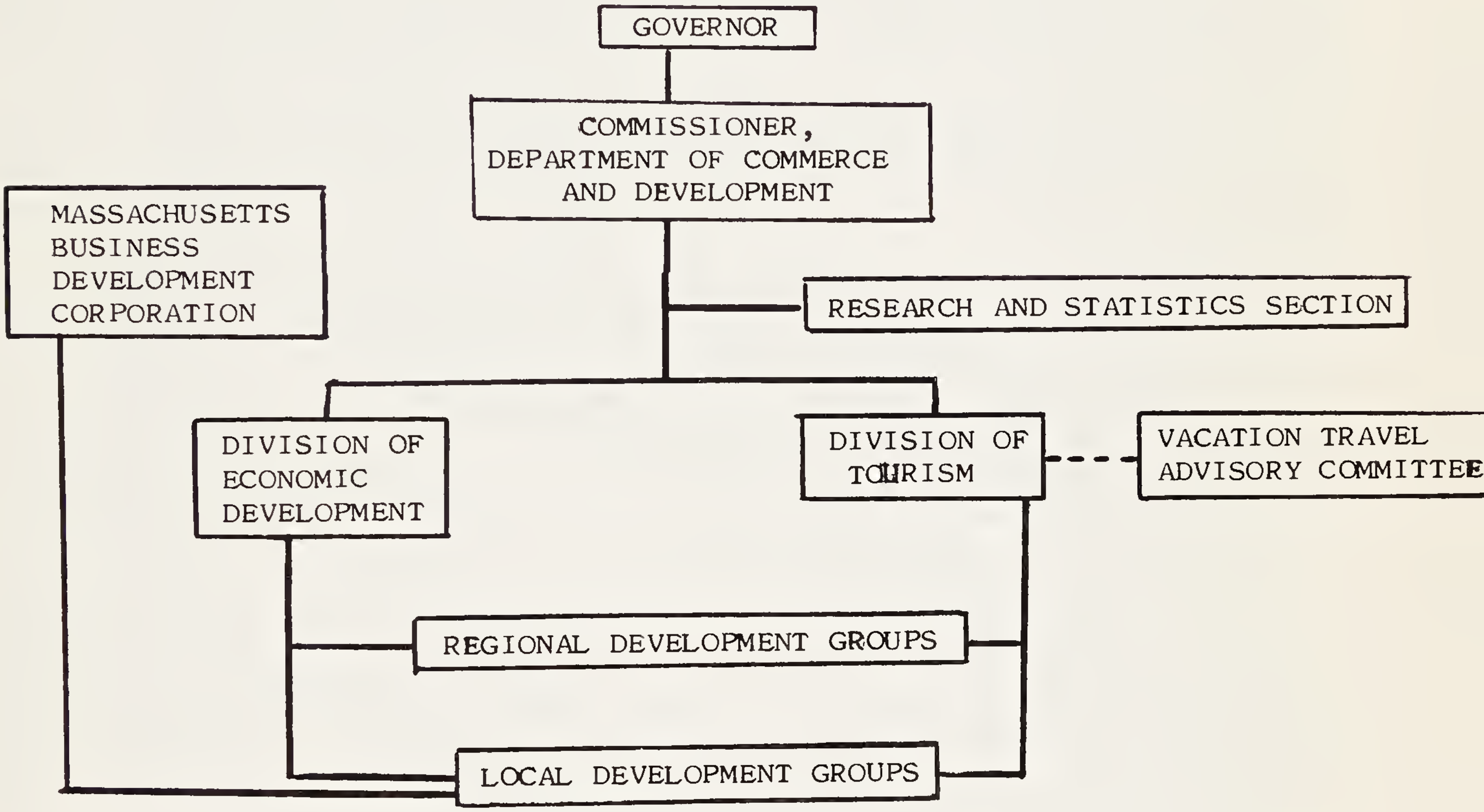
The Division of Tourism supervises the production and distribution of the State's promotion literature, provides speakers, motion pictures and slides on Vacation/Travel promotion, arranges exhibits at conventions, conferences, travel and trade shows, and coordinates efforts of the Governor's Vacation/Travel Advisory Committee.

a. State-Level Development Organizations. State Development Organizations - The Massachusetts Business Development Corporation, a state-wide development credit corporation, operates under a special state charter. There is no formal liaison between the Corporation and the Department of Commerce and Development, but a close working relationship is maintained on an informal basis. The state has not established an industrial building authority.

b. Local and Regional Development Groups. In addition to its other functions, the Division of Economic Development assists local and regional development groups, through its field agents, in organizing for development and creating development programs. The Division cooperates with these groups in working with industrial prospects. Presently, there are 6 regional industrial development commissions, 185 local industrial commissions, and 30 industrial corporations and/or foundations organized within the Commonwealth.

c. State-Level Development Activities. The state does not offer tax incentives to industry, in the usual sense of the term, nor does it authorize local government units to do so. An exemption from taxation on investments in machinery and equipment having a useful life of eight years or more does, however, advantage all industry within the state. Local government units are not authorized to issue either revenue or general obligation bonds for industrial development purposes.

Development Organization


GOVERNOR
COMMISSIONER, DEPARTMENT OF COMMERCE AND DEVELOPMENT
MASSACHUSETTS BUSINESS DEVELOPMENT CORPORATION
RESEARCH AND STATISTICS SECTION
DIVISION OF ECONOMIC DEVELOPMENT
DIVISION OF TOURISM
VACATION TRAVEL ADVISORY COMMITTEE
REGIONAL DEVELOPMENT GROUPS
LOCAL DEVELOPMENT GROUPS

3. Planning

State planning, and regional and local planning assistance, are the responsibility of the Department of Commerce and Development and its Division of Planning. The Division is divided into two bureaus -- Planning Assistance and Area Planning -- to facilitate its operations.

a. State-Level Planning. Comprehensive state planning is just getting underway in Massachusetts. Although the state has had experience with various types of state planning since the 1930's, the main emphasis of the State Planning Board, and subsequently the Planning Division of the Department of Commerce, has until recently been upon technical assistance to local communities. For a short time, in fact, the agency designated as responsible for state planning was the Mass Transportation Commission, despite the fact that it was an ad hoc and regionally oriented agency, primarily concerned with mass transportation.

In August, 1965, however, the Department of Commerce and Development was reorganized. An Area Planning Section was added to the Division of Planning in recognition of an expanded planning function, and the Department was designated as the state planning agency.

At the present time the Division of Planning has pending before the U. S. Department of Housing and Urban Development an application for funds to finance the design of a state-wide planning program. Plans are currently in preparation to increase coordination among state agencies to facilitate comprehensive long-range planning. And the Division of Planning, in cooperation with the Eastern Massachusetts Planning Project and the Area Development Center at Boston University, is undertaking a preliminary survey of state agency programs and policies, in preparation for the state planning program.

In addition, liaison with other state agencies is maintained by the Planning Division's ex officio participation in a number of these agencies, including the:

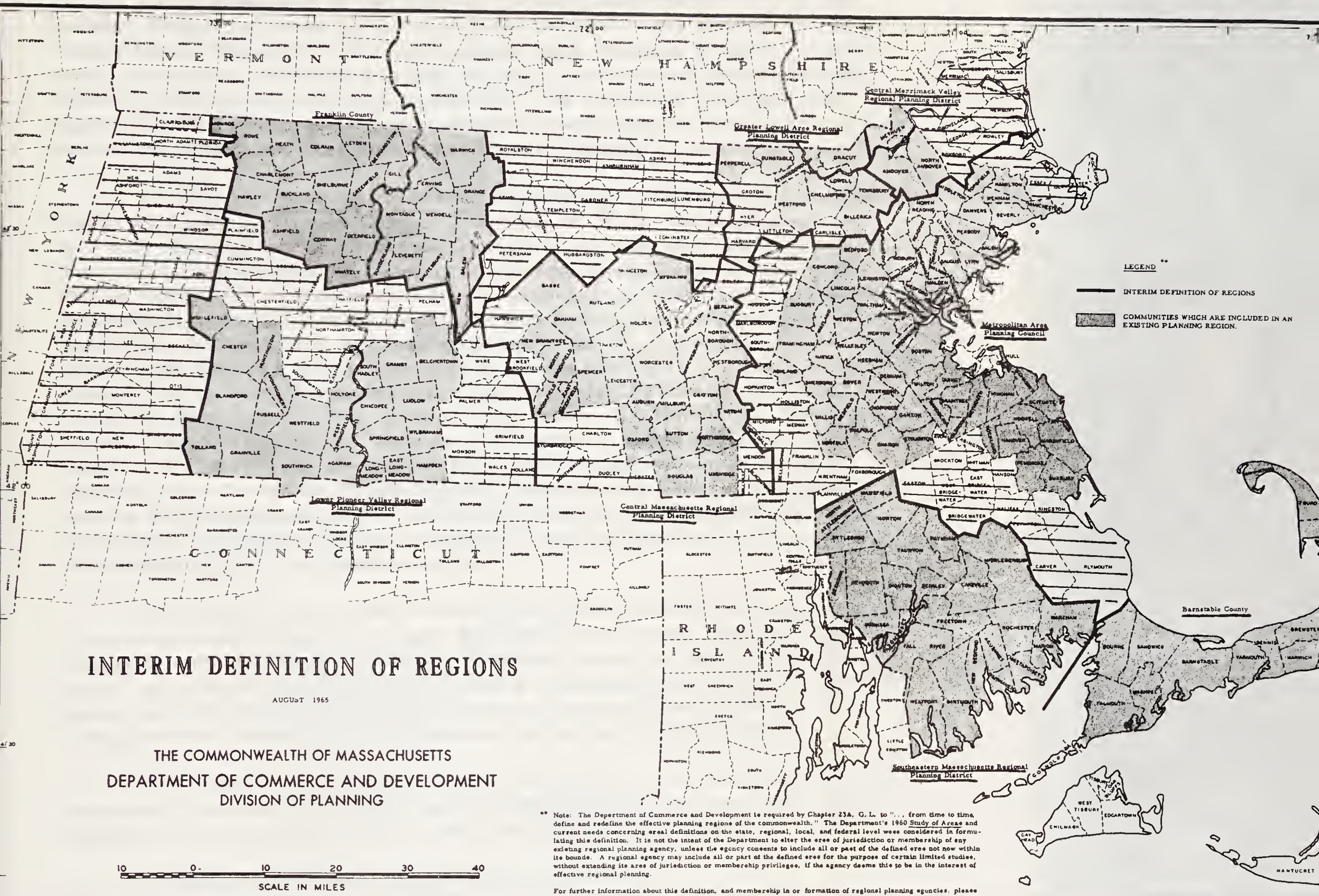
Attorney General's Highway Recodification Committee
Legislative Commission on Interstate Cooperation
Eastern Massachusetts Regional Planning Project
Massachusetts Federation of Planning Boards
Massachusetts Historical Commission
State Committee for an Inventory of Soil and Water Conservation Needs
State Recreation Commission
Water Resources Commission

b. Regional Planning. The map on the following page indicates the ten regions into which the state has been divided for planning purposes. Attention is drawn to the fact that this is an interim definition as of August, 1965. All ten regions are currently engaged in planning activities, or are organizing for regional planning. Duke's County (Martha's Vineyard), which is not shown as part of any region, is also organizing for planning.

Organization for regional planning is provided for in Chapter 40-B, General Laws of Massachusetts (enacted in 1955), which authorizes local government units to form regional planning organizations within designated planning regions. The Division assists in the organization of regional planning commissions and development of their programs.

Although 40-B is the only regular legislation permitting establishment of regional planning agencies, the legislature can create special regional agencies, and has done so in the case of two counties where regional planning is now a function of county government, and in the Boston Metropolitan area.

Eight of the state's ten regions border on adjacent areas of other states, and in several of these planning has involved consideration of out-of-state communities -- although there has been no formal participation by these


VERMONT
NEW HAMPSHIRE
NEW YORK
CONNECTICUT
RHODE ISLAND
Franklin County
Central Merrimack Valley Regional Planning District
Greater Lowell Area Regional Planning District
Metropolitan Area Planning Council
Lower Pioneer Valley Regional Planning District
Central Massachusetts Regional Planning District
Southeastern Massachusetts Regional Planning District
Barnstable County
LEGEND **
INTERIM DEFINITION OF REGIONS
COMMUNITIES WHICH ARE INCLUDED IN AN EXISTING PLANNING REGION.
72° 00'
71° 00'
73° 00'
10
0
10
20
30
40
SCALE IN MILES

INTERIM DEFINITION OF REGIONS

AUGUST 1965

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF COMMERCE AND DEVELOPMENT
DIVISION OF PLANNING

** Note: The Department of Commerce and Development is required by Chapter 23A, G. L. to "... from time to time, define and redefine the effective planning regions of the commonwealth." The Department's 1960 Study of Areas and current needs concerning areal definitions on the state, regional, local, and federal level were considered in formulating this definition. It is not the intent of the Department to alter the area of jurisdiction or membership of any existing regional planning agency, unless the agency consents to include all or part of the defined area not now within its bounds. A regional agency may include all or part of the defined area for the purpose of certain limited studies, without extending its area of jurisdiction or membership privileges, if the agency deems this to be in the interest of effective regional planning.

For further information about this definition, and membership in or formation of regional planning agencies, please see General Information Memorandum #8, August 1965 published by the Department of Commerce and Development.

communities in the Massachusetts agencies. The legislature has recognized the geography of the situation by enacting legislation enabling Massachusetts communities to participate in the regional planning agencies of neighbor states. In addition, a special coordinating committee has been set up by the two major transportation studies in eastern Massachusetts and Rhode Island, to assure that they work in tandem.

The organization of two regional planning operations are described below. Neither has been established under the provisions of 40-B or along county lines. The first is the Metropolitan Area Planning Council, a permanent state agency established to plan for one of the ten designated planning areas -- that around metropolitan Boston. The second is an ad hoc state agency created to prepare a comprehensive transportation plan for the eastern part of the state: the Eastern Massachusetts Planning Project.

c. The Metropolitan Area Planning Council. The Council was established as a state agency by Chapter 668, Acts of 1963. Its original concern was with planning for the southwest transportation corridor, which it has done under memorandum of agreement with the Massachusetts Department of Public Works, the Massachusetts Bay Transportation Authority, the Boston Department of Public Works, and the Boston Redevelopment Authority. Its operations are funded by legislative appropriations, assessed upon cities and towns in the planning district, but not to exceed five cents per capita. The Council has completed projects on: Open Space and Recreation Planning, Economic Base and Population, and a Jamaicaway Traffic Study. The Council is also cooperating with the University of Massachusetts, assisting in the location of a site for its Boston campus; and in conjunction with the MIT-Harvard Joint Center for Urban Studies, is developing a series of regional studies and development plans, including a plan for economic development. The Council also offers advice, assistance, and technical services to local communities within the planning region.

The Council has recently received an urban planning assistance grant to undertake three studies: 1) Open Space and Recreation, 2) Solid Waste Disposal, and 3) Advanced Studies in Regional Goals, for the Metropolitan Area. In addition, the Council serves in a coordinating and advisory capacity to the Advisory Board of the MBTA, and has assumed responsibility for 10 Transportation Coordination Committees within the region it serves.

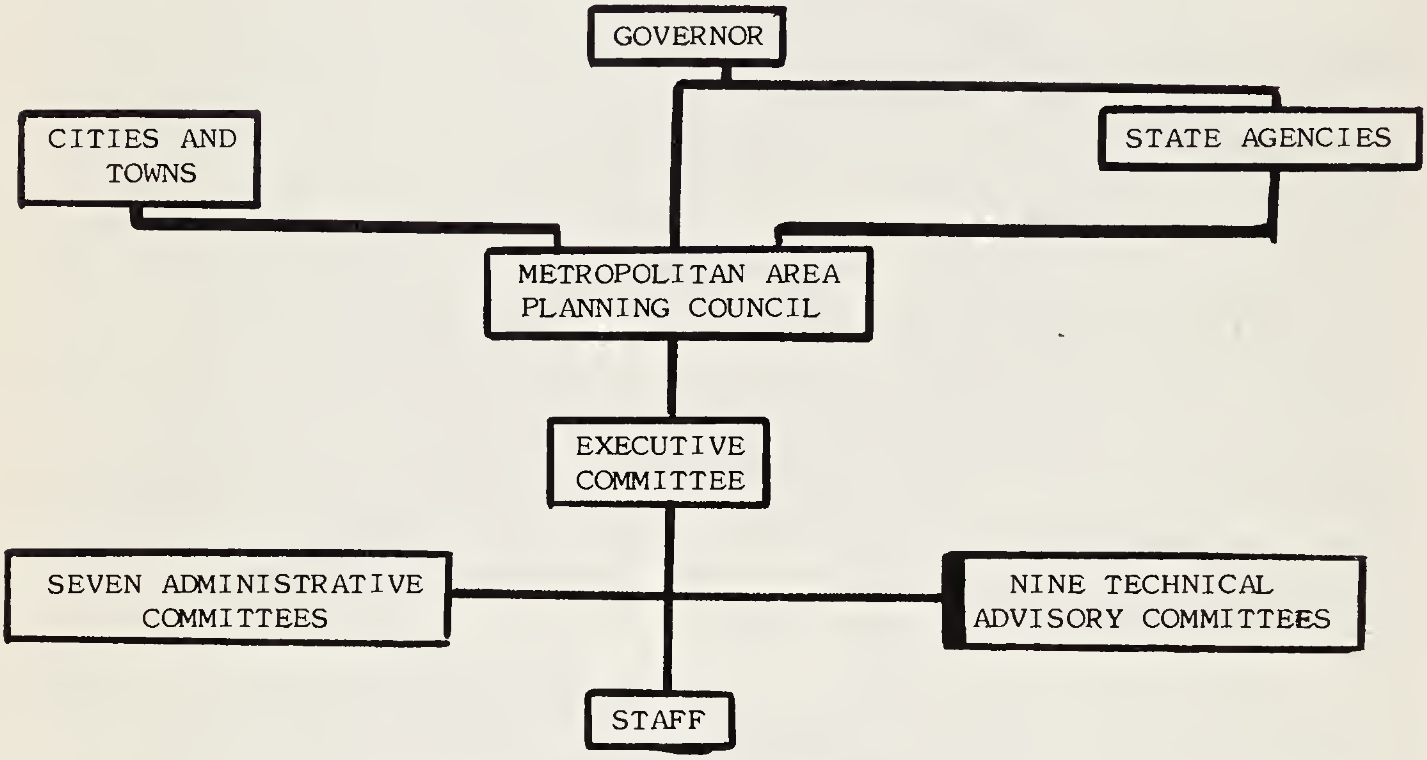
The Council is composed of some 82 members: representatives of 14 cities and 37 towns, 21 citizens appointed by the Governor, and 10 ex officio members representing key city, state, and regional agencies:

- Massachusetts Bay Transportation Authority
- Massachusetts Port Authority
- Massachusetts Turnpike Authority
- Massachusetts Department of Public Safety
- Massachusetts Department of Natural Resources

- Massachusetts Department of Commerce and Development
- Metropolitan District Commission
- Boston Department of Public Works
- Boston Redevelopment Authority

A twenty-member executive committee (which includes five of the ten agencies listed above) administers the Council's activities, supported by nine technical advisory committees and seven administrative committees. Membership on the technical committees is not limited to Council members, but only members may serve on the administrative committees. An Executive Director and staff of nine specialists do the planning.

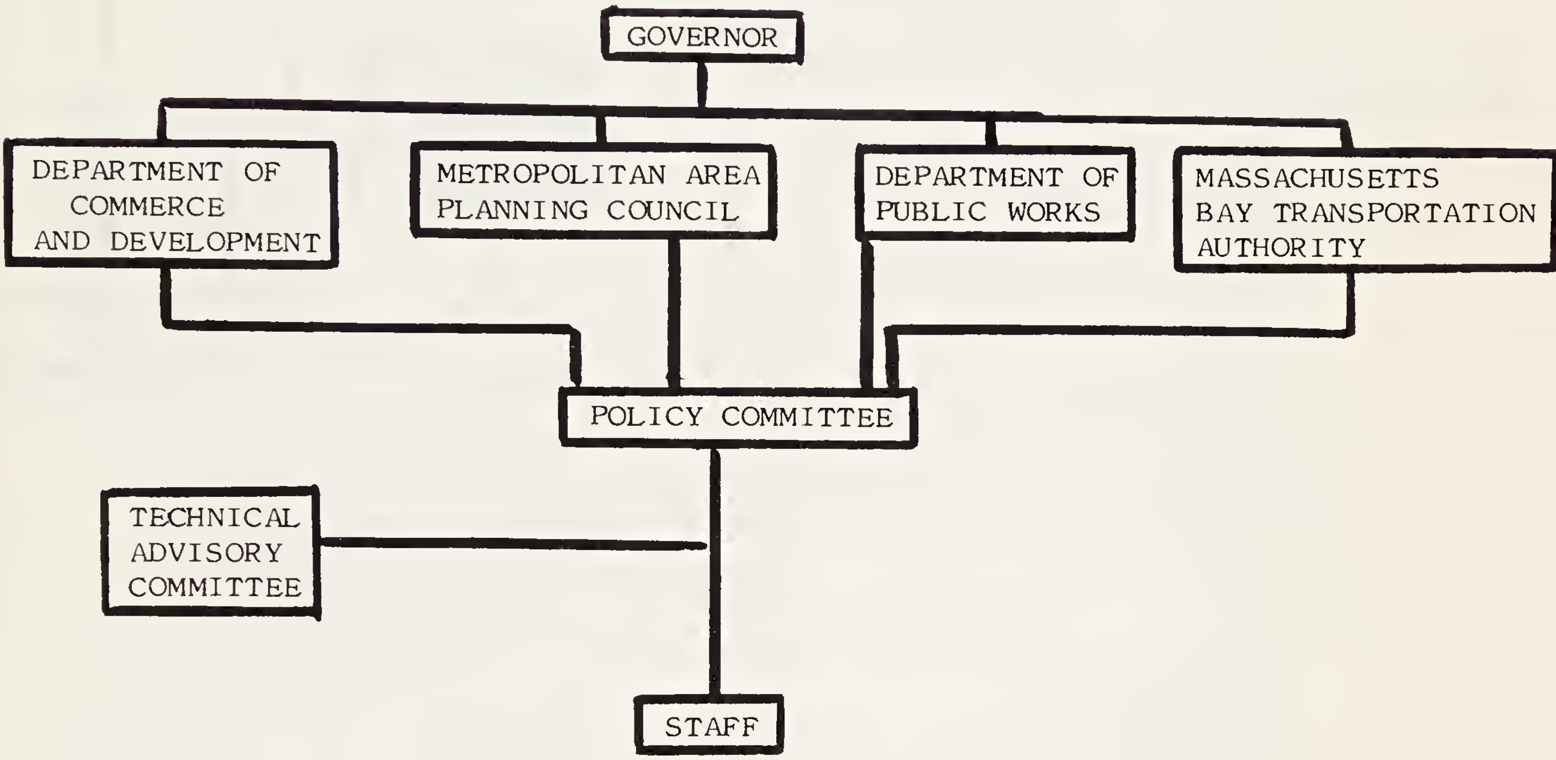
Organization of the Metropolitan Area Planning Council


GOVERNOR
CITIES AND TOWNS
STATE AGENCIES
METROPOLITAN AREA PLANNING COUNCIL
EXECUTIVE COMMITTEE
SEVEN ADMINISTRATIVE COMMITTEES
NINE TECHNICAL ADVISORY COMMITTEES
STAFF

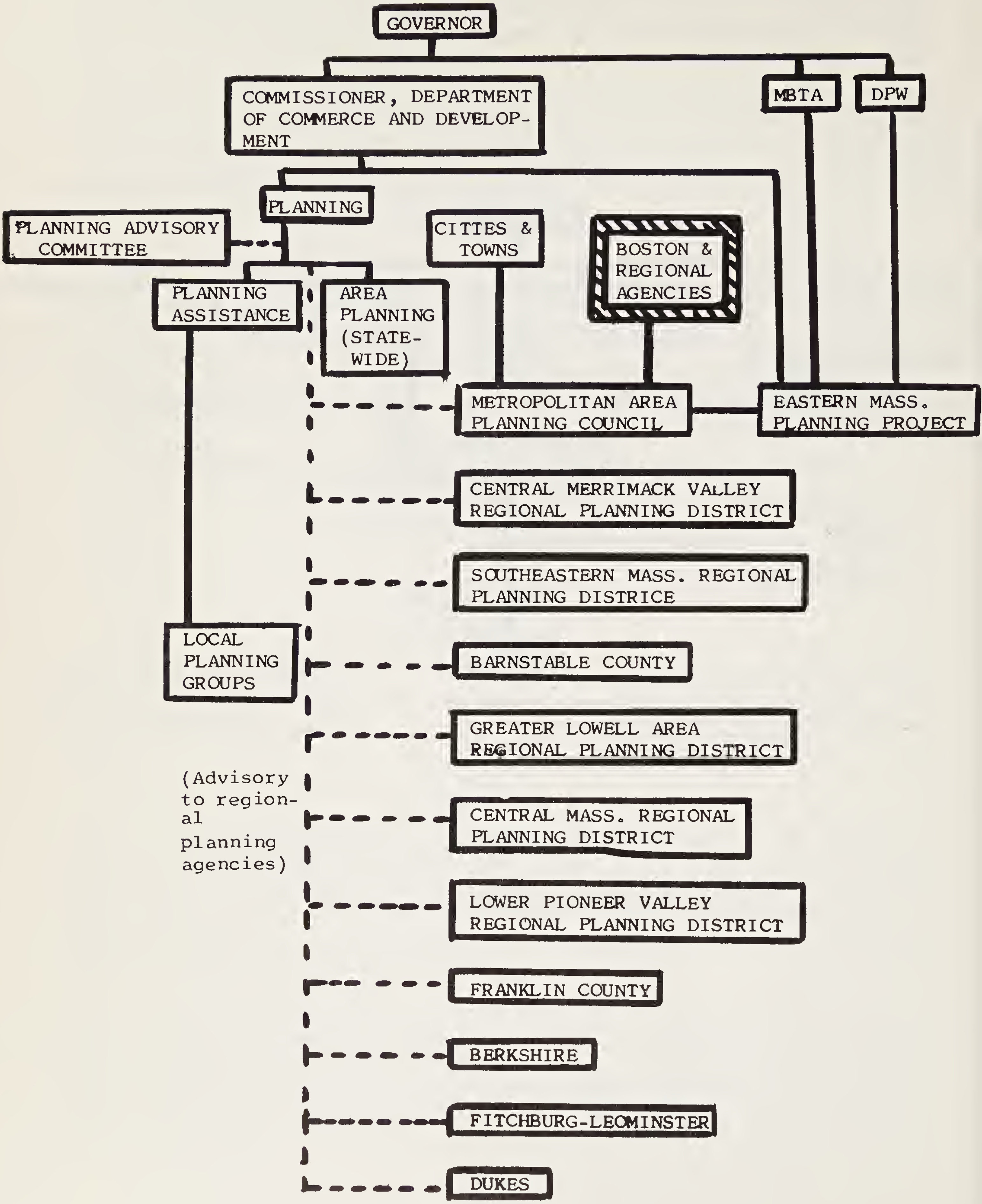
d. P-34 The Eastern Massachusetts Planning Project. The EMPP is an ad hoc agency (expected to phase out within a year) established for the purpose of preparing a comprehensive transportation plan for the eastern portion of the state. It is financed in part by funds from the U. S. Bureau of Public Roads and the H. H. F. A. "701" program. It encompasses 152 cities and towns, and has a budget of over $4. 8 million.

Four state agencies have assumed specific responsibility for the project and are represented on its Policy Committee: The Department of Commerce and Development, the Department of Public Works, the Massachusetts Bay Transportation Authority, and the Metropolitan Area Planning Council. The Commissioner of Commerce and Development serves as chairman of the policy committee.

The project is advised by a Technical Advisory Committee and has its own staff, drawn from the staffs of the four participating agencies, and to which they will return when the project is phased out. Staff members report back to both the Project Director, and the staff directors of their home agencies. The Project Director reports to the Policy Committee.


GOVERNOR
DEPARTMENT OF COMMERCE AND DEVELOPMENT
METROPOLITAN AREA PLANNING COUNCIL
DEPARTMENT OF PUBLIC WORKS
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
POLICY COMMITTEE
TECHNICAL ADVISORY COMMITTEE
STAFF

PLANNING ORGANIZATION


GOVERNOR
COMMISSIONER, DEPARTMENT OF COMMERCE AND DEVELOPMENT
MBTA
DPW
PLANNING
PLANNING ADVISORY COMMITTEE
CITIES & TOWNS
BOSTON & REGIONAL AGENCIES
PLANNING ASSISTANCE
AREA PLANNING (STATE-WIDE)
METROPOLITAN AREA PLANNING COUNCIL
EASTERN MASS. PLANNING PROJECT
CENTRAL MERRIMACK VALLEY REGIONAL PLANNING DISTRICT
SOUTHEASTERN MASS. REGIONAL PLANNING DISTRICE
LOCAL PLANNING GROUPS
BARNSTABLE COUNTY
GREATER LOWELL AREA REGIONAL PLANNING DISTRICT
(Advisory to regional planning agencies)
CENTRAL MASS. REGIONAL PLANNING DISTRICT
LOWER PIONEER VALLEY REGIONAL PLANNING DISTRICT
FRANKLIN COUNTY
BERKSHIRE
FITCHBURG-LEOMINSTER
DUKES

e. Local Planning Assistance. As already noted, the major emphasis of the Planning Division has until recently been placed upon technical assistance to local communities, and this function continues to be an important one. The Planning Assistance Section of the Division, in addition to preparing informational and technical publications for the use of local planning boards, and a series of town base maps, offers direct assistance in organizing local planning boards, and in preparing planning, zoning, and sub-division control legislation. The Division also administers "701" grants to local communities; 171 of Massachusetts' 351 cities and towns have received such grants.

4. Capital Budgeting

Hillhouse and Howard describe the capital budgeting process in Massachusetts as follows: 1/

> A five-year schedule of capital outlays is annually recommended to the Governor by the Division of Building Construction. This division is responsible to the Commission on Administration and Finance. State-wide priorities are assigned. The program has been financed entirely by bonds which are supported by earmarked taxes. Construction projects related to highway, sewer and water systems are exempted from this procedure, as are college dormitories, authority construction projects (tool facilities of all types) and other minor items.

1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Governments, 1963), p. 155

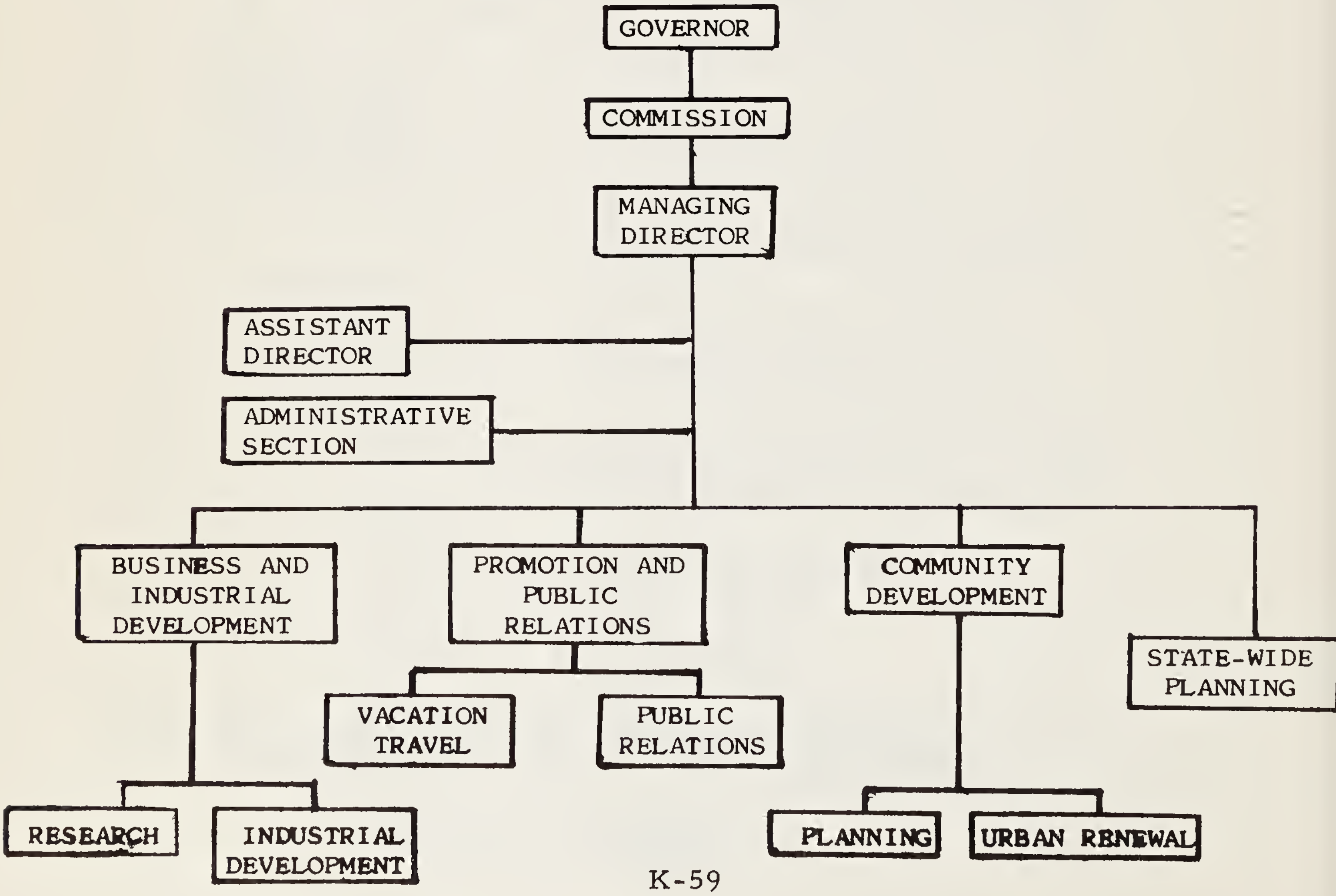
E. Connecticut

1. The Planning and Development Agency

The main planning and development agency is the Connecticut Development Commission. The twelve commissioners are appointed by the Governor for staggered five-year terms. The Commission appoints the Managing Director, with the approval of the Governor. (Ch. 578, Conn. Gen. Stats., as amended). The Director's office is supported by an Assistant Managing Director, and administrative section.

The Commission is divided into three divisions and a state-wide planning section. The three divisions are: the Business and Industrial Development Division (sub-divided into Research and Industrial Development), the Promotion and Public Relations Division (sub-divided into Vacation Travel and Public Relations), and the Community Development Division (sub-divided into a Planning Section and an Urban Renewal Section). The three divisions are sometimes described as representing, respectively, those functions pertaining to private, individual, and public entities involved in the planning and development process. (This diagram and others in this section are adapted from the official organization chart of the Connecticut Development Commission.)

Main Agency Organization


GOVERNOR
COMMISSION
MANAGING DIRECTOR
ASSISTANT DIRECTOR
ADMINISTRATIVE SECTION
BUSINESS AND INDUSTRIAL DEVELOPMENT
PROMOTION AND PUBLIC RELATIONS
COMMUNITY DEVELOPMENT
STATE-WIDE PLANNING
VACATION TRAVEL
PUBLIC RELATIONS
RESEARCH
INDUSTRIAL DEVELOPMENT
PLANNING
URBAN RENEWAL

2. Economic Development

Economic Development activities are primarily the responsibility of the Connecticut Development Commission, and its Divisions of Business and Industrial Development, and Promotion and Public Relations. As already noted, however, there are no sharp distinctions drawn between planning functions and development functions, and the divisions performing these functions. Thus the Planning section of the Community Development Division employs an industrial agent.

a. State-Level Development Organizations. Connecticut has established two state-level development organizations: the Connecticut Development Credit Corporation, which operates under a special state charter; and the Connecticut Industrial Building Commission. The Commission insures industrial mortgages for up to 90% of total cost, or $10 million, whichever is less, for real estate financing; and 80% or $5 million, whichever is less, for financing machinery and equipment.

The Chairman of the Development Commission is ex officio a member of the Board of the Development Credit Corporation. Applications to the Industrial Building Commission must be submitted to the Development Commission for review and comment, but the Commission does not have a formal veto power.

b. Local and Regional Development Groups. Eighty-eight local communities have established municipal development commissions or committees. In addition, four of these (Ansonia, Derby, Oxford, and Seymour) have joined in forming a regional development organizations: the Gateway Regional Development and Industrial Commission. Legislation authorizing municipal and regional development and industrial commissions may be found in ch. 97, Secs. 7-136 and 7-137, Conn. Gen. Stats. 1958.

These commissions are joined in the Connecticut Association of Municipal Development Commissions, for which an industrial agent attached to the office of the chief of the Division of Community Development serves as secretariat. (The Division also serves as Secretariat for a like group in the planning field: the Connecticut Federation of Planning and Zoning Agencies.)

In addition to municipal and regional commissions, which are agencies of local government units, a number of communities have organized industrial foundations. Of 21 foundations which have been identified, 12 are in communities which also have a commission, and 9 are in communities which have not established a commission. Rosters of both commissions and foundations are available from the Commission.

c. Advisory Groups and Inter-Agency Liaison. The Commission's Industrial Development Section serves as secretariat to the Connecticut Industrial Development Council, and information services are provided to the

Council by the Research Section. The Council is composed of representatives of three state agencies concerned with industrial development and financing and the development departments of banks, railroads, and public utility companies.

Inter-agency liaison is maintained through the Commission's participation with other agencies in the Connecticut Interregional Planning Program, which is discussed in detail in the following section. Other formal liaison arrangements include the ex officio membership of the Chairman of the Development Commission on the Council of Agriculture and Natural Resources (which heads the department of the same name); and the ex officio membership of the Vice Chairman of the Development Commission on the State Historical Commission. Close working relationships are also maintained with state agencies with which no formal liaison exists.

d. Technology. Connecticut had for some years a scientific Research Advisory Committee to consider the application of newly developed technologies to economic development of the state. Recent legislation has created a Connecticut Research Commission, with staff personnel, and funds with which to sponsor appropriate research by industry, universities, research institutes, etc. The existence of this agency, and the relatively advanced thinking in Connecticut on the application of new technologies to industry, is at least partially responsible for Connecticut's not having joined the other five New England states in establishing a common program for implementation of the State Technical Services Act of 1965. The Research Commission is the officially designated agency in Connecticut, under the Act. Informal liaison is maintained between the Development Commission and the Research Commission.

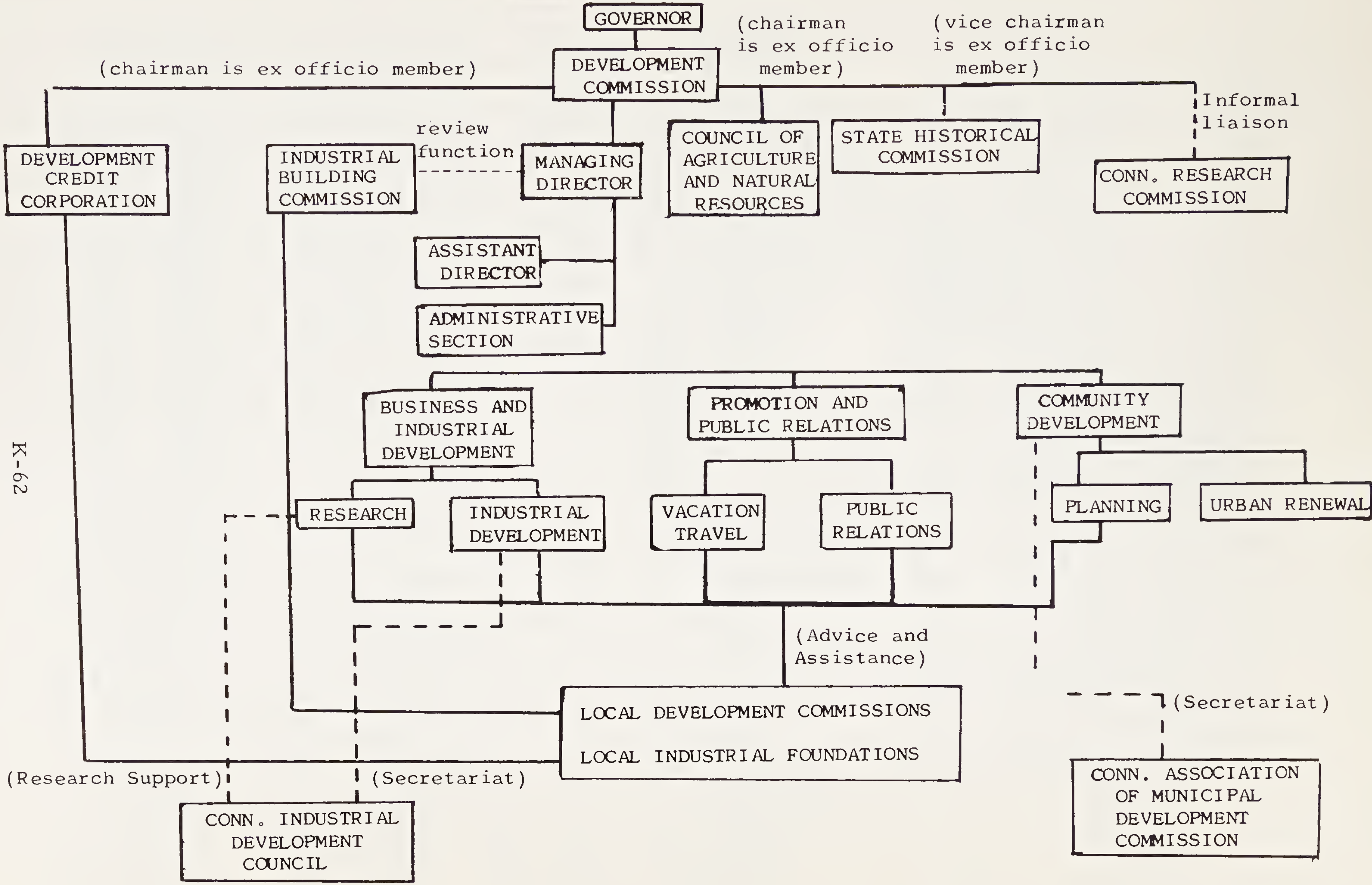
The Development Commission is in the process of filling two newly created staff positions for Agent Technologist. The agents will be field representatives advising Connecticut industries on modernization, new processes, and other technological matters.

e. State-Level Development Activities. The state does not offer tax incentives for industrial development purposes, nor does it authorize local government units to do so. Local government units are not authorized to issue industrial development bonds.

The Commission operates a trade expansion program and is currently distributing catalogues of Connecticut products made for export, published in three languages. An International Trade Specialist and Economic Analyst, to be engaged shortly, will devote full time to developing markets for Connecticut products and seeking to attract foreign manufacturers who are considering eastern United States locations for branch plants.

The Commission administers three state development programs involving a state financial contribution:

DEVELOPMENT ORGANIZATION


GOVERNOR
DEVELOPMENT COMMISSION
(chairman is ex officio member)
(chairman is ex officio member)
(vice chairman is ex officio member)
Informal liaison
DEVELOPMENT CREDIT CORPORATION
INDUSTRIAL BUILDING COMMISSION
review function
MANAGING DIRECTOR
COUNCIL OF AGRICULTURE AND NATURAL RESOURCES
STATE HISTORICAL COMMISSION
CONN. RESEARCH COMMISSION
ASSISTANT DIRECTOR
ADMINISTRATIVE SECTION
BUSINESS AND INDUSTRIAL DEVELOPMENT
PROMOTION AND PUBLIC RELATIONS
COMMUNITY DEVELOPMENT
RESEARCH
INDUSTRIAL DEVELOPMENT
VACATION TRAVEL
PUBLIC RELATIONS
PLANNING
URBAN RENEWAL
(Advice and Assistance)
LOCAL DEVELOPMENT COMMISSIONS
LOCAL INDUSTRIAL FOUNDATIONS
(Secretariat)
(Research Support)
(Secretariat)
CONN. INDUSTRIAL DEVELOPMENT COUNCIL
CONN. ASSOCIATION OF MUNICIPAL DEVELOPMENT COMMISSION

1. The Division of Business and Industrial Development administers a program wherein the state contributes up to one half the local community's share of financing new industries under two federal programs; those of the Economic Development Administration and the Small Business Administration.

2. The Community Development Division administers an Industrial Park Loan Program and an Industrial Urban Renewal Program. Under the first of these, the Commission provides loans to local development corporations for the improvement of, and provision of services to tracts of land being developed as industrial parks.

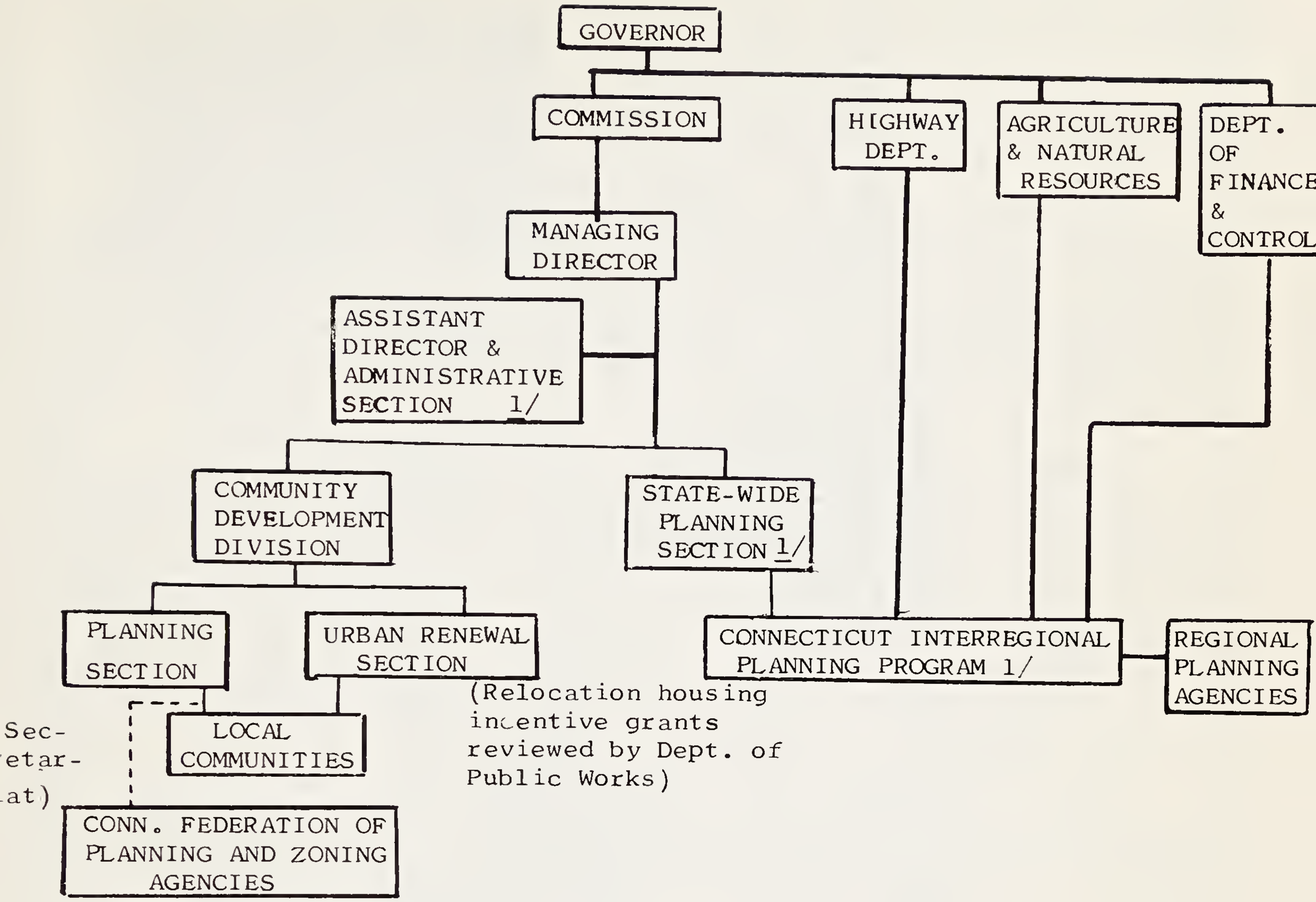
3. Under the Industrial Urban Renewal Program provision is made for 50% sharing by the state of all costs of land acquisition and development of industrial parks in deteriorated areas.

3. Planning

The Development Commission's planning activities are carried out through its Community Development Division (for local planning assistance and urban renewal services), and its State-Wide Planning Section. The State-Wide Planning Section is not a centralized state planning agency however. Rather, it is the Development Commission's contribution to a unique cooperative mechanism: the Connecticut Interregional Planning Program (CIPP). This program is a joint responsibility of the Development Commission, the State Highway Department, the Department of Agriculture and Natural Resources, and the Department of Finance and Control. It is CIPP which does state-wide planning. Regional planning is done by the various regional planning agencies, but CIPP has a dual relationship with these agencies: it provides them with regional planning grants and services, and it coordinates their activities with each other and with state-wide planning efforts.

a. Local Planning. Local planning assistance is offered by the Planning section of the Commission's Division of Community Development. The section administers local "701" grants, and offers technical assistance and advisory services through its field operatives. Field workers also actively encourage the creation of municipal planning and zoning boards in communities not yet having them, and local community participation in regional planning agencies. As of 1956, only 15 Connecticut communities were without planning and/or zoning boards.

The Planning Section also serves as secretariat and technical advisor to the nearly 200 agency member Federation of Planning and Zoning Agencies. The Planning Section also serves as secretariat to the Connecticut Association of Municipal Development Commissions. This has two results: 1) it provides a measure of liaison and coordination between planning and development efforts at the local level, and 2) it places the bulk of the Commission's services and assistance relationships with local communities within a single division.


GOVERNOR
COMMISSION
HIGHWAY DEPT.
AGRICULTURE & NATURAL RESOURCES
DEPT. OF FINANCE & CONTROL
MANAGING DIRECTOR
ASSISTANT DIRECTOR & ADMINISTRATIVE SECTION 1/
COMMUNITY DEVELOPMENT DIVISION
STATE-WIDE PLANNING SECTION 1/
PLANNING SECTION
URBAN RENEWAL SECTION
CONNECTICUT INTERREGIONAL PLANNING PROGRAM 1/
REGIONAL PLANNING AGENCIES
(Relocation housing incentive grants reviewed by Dept. of Public Works)
Sec-
etar-
at)
LOCAL COMMUNITIES
CONN. FEDERATION OF PLANNING AND ZONING AGENCIES

b. Urban Renewal. Also within the Division of Community Development is the Urban Renewal Section, offering urban renewal services and assistance to local communities. Connecticut has established an incentive grant program for relocation housing, to encourage the building of new living units for those displaced by renewal programs. This grant program is administered by the Urban Renewal Section, subject to review by the Department of Public Works which has general responsibility for housing.

Direct grants-in-aid and loans for one half of the non-federal share of the net project cost of all projects in the state are also provided. This program is budgeted at approximately $70 million.

c. Regional Planning. The state of Connecticut has been divided into

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1/ CIPP is housed in the Development Commission, as a part of the Administrative Section.

fifteen regions by the Development Commission, for planning purposes. The map on the following page indicates these regions, those in which a regional agency is active, and the participating municipalities. The two regions which are cross hatched on the map are now also activated (Bristol and Ansonia-Derby), bringing the total of regional planning agencies to ten. As noted on the map, four towns have not yet been assigned to any region.

Regional organization for planning antedates current state planning efforts by a good number of years. Enabling legislation authorizing the establishment of regional planning agencies was originally passed in 1947 (Chapter 127, Conn. Gen. Stats.); only within the last year has specific responsibility for state planning been vested in the Development Commission by legislation. This has been a major factor in shaping the evolution of Connecticut's planning organization.

Chapter 127 provides that when a sufficient number of municipalities have voted to join in the creation of a regional planning agency so that the representatives from these municipalities constitute 60% or more of all the total possible representatives of all the municipalities within the defined region, a regional planning agency comes into existence. Other contiguous jurisdictions may join subsequently, so long as they are within the same region; and provision is also made for subsequent withdrawal of municipalities upon sufficient notice. Funds to support the operation of regional agencies come from local (participating municipalities), state, and federal sources.

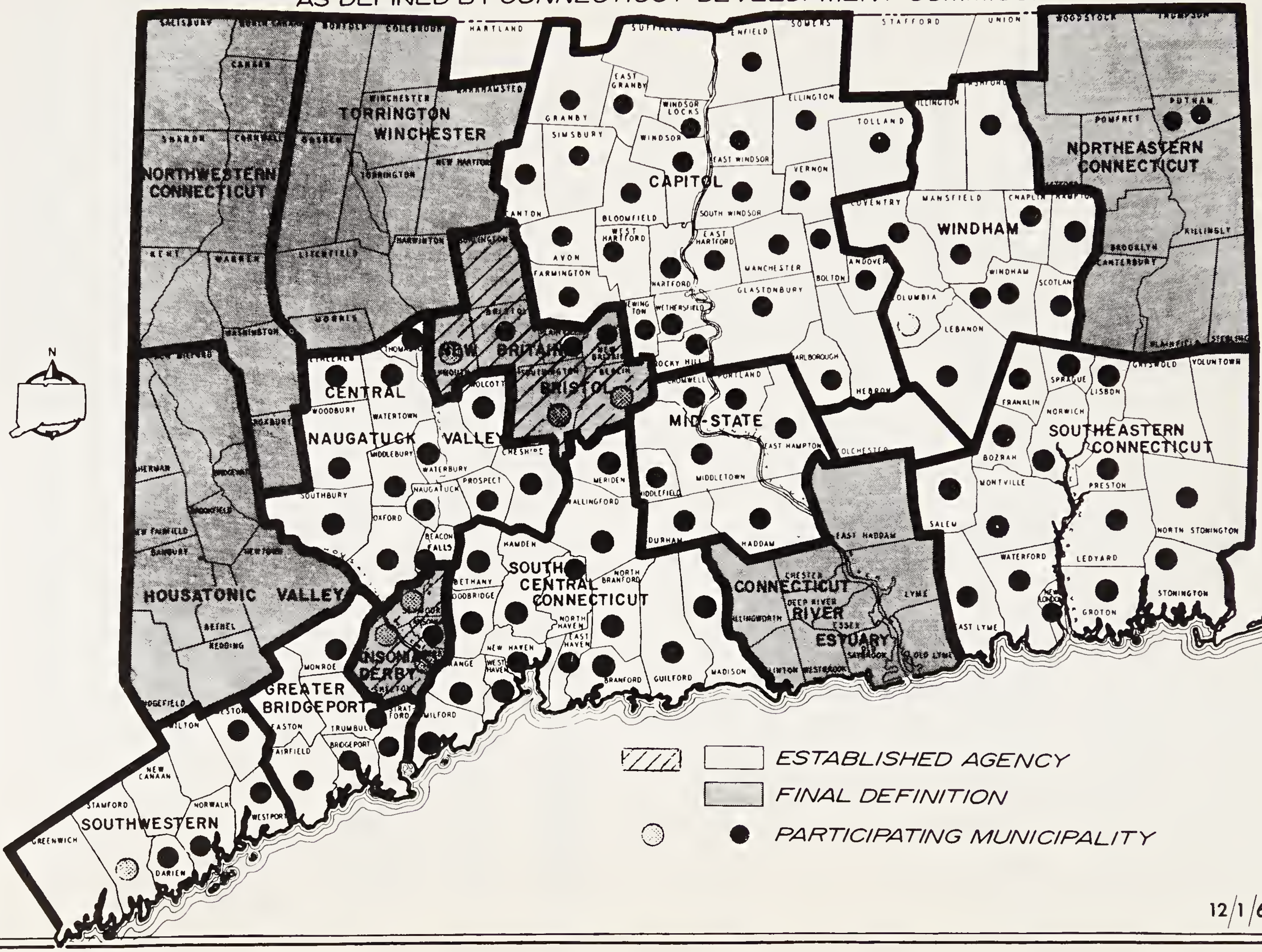
In addition to state funds, regional planning agencies receive advice and assistance from CIPP. A permanent staff position has been established in CIPP for liaison with the regional agencies, that of Regional Planning Coordinator. Directors of the regional planning agencies meet monthly with the coorindator. The relationship between CIPP and the regional planning agencies is not one way in nature, however. The regional agencies participate substantially in the work of CIPP, and in determining its direction.

d. State-Wide Planning. As noted above, there is no central state planning agency as such. State-wide planning is a cooperative effort of four state agencies through CIPP, and in conjunction with the regional planning agencies.

CIPP is headed by an inter-agency Policy Committee composed of the heads of the four participating agencies. The Committee meets quarterly. A Program Coordinating Committee, composed of representatives of these same agencies, meets bi-monthly. A Board of Administration meets weekly. The representative of the Development Commission is chairman of this Board. Staff is composed of planning staff members from participating state agencies, and some CIPP personnel paid through federal funds. Funding is from state and federal funds, with "701" funds being the larger part of federal funds received.

PLANNING REGIONS OF CONNECTICUT

AS DEFINED BY CONNECTICUT DEVELOPMENT COMMISSION


N
NORTHWESTERN CONNECTICUT
TORRINGTON WINCHESTER
CAPITOL
WINDHAM
NORTHEASTERN CONNECTICUT
NEW BRITAIN
BRISTOL
CENTRAL NAUGATUCK VALLEY
MID-STATE
SOUTHEASTERN CONNECTICUT
HOUSATONIC VALLEY
SOUTH CENTRAL CONNECTICUT
CONNECTICUT RIVER ESTUARY
ANSONIA DERBY
GREATER BRIDGEPORT
SOUTHWESTERN
SALISBURY
CANAAN
SHARON
CORNWALL
KENT
WARREN
WINCHESTER
TORRINGTON
NEW HARTFORD
LITCHFIELD
HARWINTON
MORRIS
WASHINGTON
HARTLAND
GRANBY
EAST GRANBY
SUFFIELD
ENFIELD
SOMERS
STAFFORD
UNION
WOODSTOCK
WINDSOR LOCKS
WINDSOR
SIMSBURY
CANTON
AVON
FARMINGTON
BLOOMFIELD
WEST HARTFORD
HARTFORD
EAST HARTFORD
EAST WINDSOR
SOUTH WINDSOR
ELLINGTON
VERNON
TOLLAND
MANCHESTER
GLASTONBURY
BOLTON
ANDOVER
COVENTRY
MANSFIELD
CHAPLIN
WINDHAM
SCOTLAND
COLUMBIA
LEBANON
HEBRON
MARLBOROUGH
NEWINGTON
WETHERSFIELD
ROCKY HILL
PUTNAM
POMFRET
KILLINGLY
BROOKLYN
CANTERBURY
PLAINFIELD
STERLING
GRISWOLD
VOLUNTOWN
SPRAGUE
LISBON
FRANKLIN
NORWICH
BOZRAH
PRESTON
MONTVILLE
NORTH STONINGTON
SALEM
WATERFORD
LEDYARD
NEW LONDON
GROTON
STONINGTON
EAST LYME
LYME
OLD LYME
COLCHESTER
EAST HADDAM
CROMWELL
PORTLAND
EAST HAMPTON
MIDDLETOWN
MIDDLEFIELD
DURHAM
HADDAM
CHESTER
DEEP RIVER
ESSEX
KILLINGWORTH
CLINTON
WESTBROOK
SAYBROOK
MADISON
GUILFORD
BRANFORD
NORTH BRANFORD
EAST HAVEN
NORTH HAVEN
NEW HAVEN
WEST HAVEN
HAMDEN
BETHANY
WOODBRIDGE
ORANGE
MILFORD
WALLINGFORD
MERIDEN
CHESHIRE
PROSPECT
WOLCOTT
WATERBURY
NAUGATUCK
BEACON FALLS
OXFORD
SOUTHBURY
MIDDLEBURY
WATERTOWN
WOODBURY
THOMASTON
BETHLEHEM
ROXBURY
NEW MILFORD
BRIDGEWATER
BROOKFIELD
NEW FAIRFIELD
SHERMAN
DANBURY
NEWTOWN
BETHEL
REDDING
RIDGEFIELD
MONROE
SHELTON
EASTON
TRUMBULL
STRATFORD
BRIDGEPORT
FAIRFIELD
WESTON
WILTON
WESTPORT
NORWALK
NEW CANAAN
STAMFORD
DARIEN
GREENWICH
ESTABLISHED AGENCY
FINAL DEFINITION
PARTICIPATING MUNICIPALITY

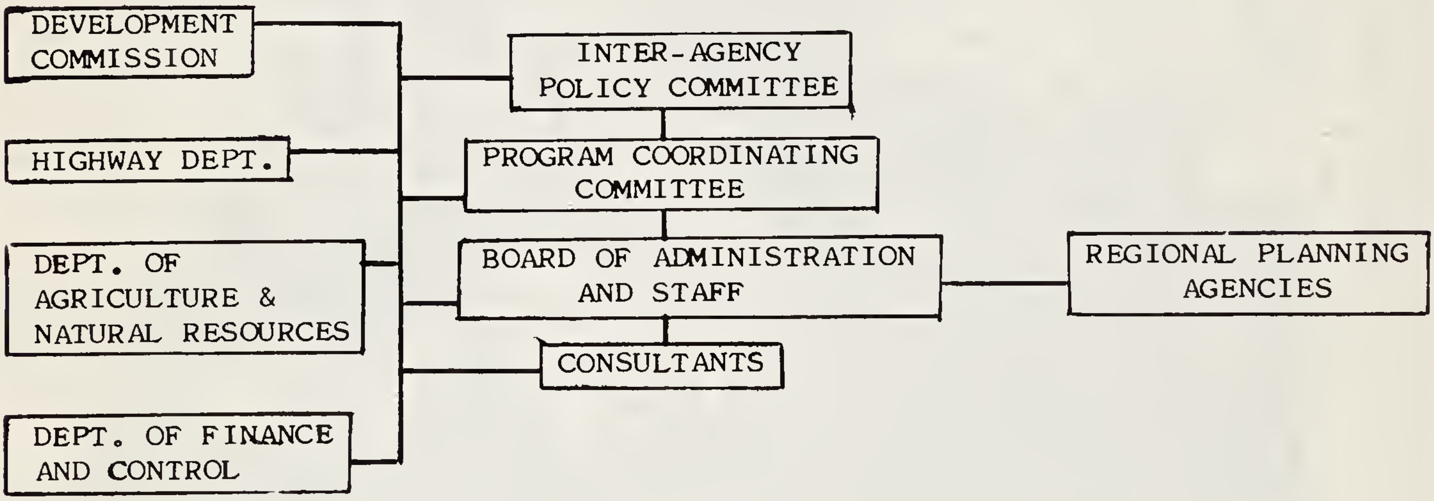
12/1/65

The planning process is also rather unique. Most planning is done on an in-house basis by participating agency staff, within their own agencies. At first view this might seem a cumbersome arrangement, but good coordination and advance scheduling of planning needs has resulted in its fairly smooth operation. Planning within each participating agency is done in stages, coordinated to meet overall program needs, and results of planning in each stage are then circulated to the other participating agencies in time to support their next planning stage. Some consultants are also used.

CIPP has completed the inventory phase (see a list of publications in the state bibliography) and is currently in the planning phase. According to the 1964-1965 Digest of Connecticut Administrative Reports:

> A comprehensive land use, resources and transportation plan for the state is being developed... Five areas of work constitute the current planning phase. The first is determination of goals and objectives for the state with subsequent testing of alternate plans. The other four include preparation of recommended plans and policies in the socio-economic, development distribution, transportation, and open space-recreation fields. Because of inter-relatedness of various study areas, it is impossible and inappropriate to separate the five areas of work into responsibilities of each of the participating agencies.

CIPP


DEVELOPMENT COMMISSION
HIGHWAY DEPT.
DEPT. OF AGRICULTURE & NATURAL RESOURCES
DEPT. OF FINANCE AND CONTROL
INTER-AGENCY POLICY COMMITTEE
PROGRAM COORDINATING COMMITTEE
BOARD OF ADMINISTRATION AND STAFF
CONSULTANTS
REGIONAL PLANNING AGENCIES

The Tri-State Transportation Commission. Connecticut's membership in the Tri-State Transportation agency serves as a reminder that in some ways a substantial part of the state (both in terms of land area and population) is within the orbit of the New York Metropolitan area.

The Transportation Commission began as a cooperative planning effort by committees appointed by the Governors of Connecticut, New York, and New Jersey. Subsequently, it has become an interstate agency established under a compact to which all three states are party. Its task is continuous comprehensive land use and transportation planning for the greater New York Metropolitan area. Connecticut representation on the agency includes representatives of the Development Commission, Department of Highways, Department of Finance and Control, and the State Public Utilities Commission. The first three of these are participating agencies in CIPP, and the representatives of the first two are also their agencies' representatives on CIPP -- thus insuring coordination between the two planning programs. Similar agencies in the other two states are also on the Transportation Agency, as well as a representative of the New York City Planning Board. Four federal members represent the Bureau of Public Roads, Department of Housing and Urban Development, the Federal Aviation Agency, and the Assistant Administrator for urban transport.

Beneath the compact agency's policy group there is a Technical Advisory Group (TAG) which meets monthly, and a staff of over 300.

Other Studies. In addition to local, regional, and CIPP studies, the Development Commission is currently working on several other projects:

1. The Development Commission has undertaken, in cooperation with the State Historical Commission a physical inventory and analysis of state historical structures and landmarks. A program of preservation and restoration will be recommended to the legislature.

2. The Development Commission is studying state government needs for the future, and will submit recommendations to the legislature for a capital improvement program for development of a State Capitol Government Center.

3. A statewide survey of socio-economic blight; its causes and methods of prevention, and the role of the state in dealing with the problem.

4. A study of all planning and zoning legislation in the state, including related community development legislation.

Open Space Grants. The state offers grants for the preservation of open space, which is administered by the Department of Agriculture and Natural Resources. The Development Commission is vested with the responsibility for reviewing applications for such grants and reporting to the Department, but does not have a veto over acceptance of applications.

Planning Legislation. The Appendix to this state section contains copies of two bills relating to planning. Both failed of passage, but they are included for their interest. The first is an act authorizing local government units to participate in interstate planning regions. (Massachusetts is the only state in which such legislation is currently in effect.) The second would create a state planning council to coordinate all state planning activities.

4. Capital Budget

Hillhouse and Howard describe the capital budget process in Connecticut thus:

> A special capital "program" is prepared as part of the operating budget. This program shows the recommendations of the state Building Program Commission, the agency requests, and the recommendations of the Governor. It covers the next biennium and includes all activities except highway construction. All projects are bond-financed except highway buildings. The Building Program Commission makes no recommendations on flood-control projects, housing for the elderly, or urban redevelopment. The Governor, with the help of the Budget Division, prepares these parts of the program and evaluates the recommendations of the Building Program Commission. 1/

1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Governments; 1963, p. 152.)

5. Appendix

AN ACT Creating a State Planning Council and a Standing Committee on State Planning and Development.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. There is established a state planning council which shall be concerned with coordinating the several planning responsibilities of the state government.

Sec. 2. Membership. The state planning council shall consist of the governor or his designee who shall be chairman, the commissioners of agriculture and natural resources, education, highway, labor, finance and control, public works, public utilities, health, mental health, and welfare, the president of the University of Connecticut, the managing director of the development commission, and such others as the governor may designate.

Sec. 3. Duties. (a) The council shall consider how the planning responsibilities now or subsequently assigned to the state or agencies of the state can best be coordinated and carried out in the efficient pursuit of public goals and objectives and shall take steps within its authority to implement such coordination and action. In furtherance of these duties the council shall: receive, study and transmit to the proper agencies, goals and policies established by the general assembly or the continuing committee on state planning and development; establish general goals, policies and objectives within those set by the general assembly or committee thereof; review and approve plans for the physical, economic or other development of the state prepared by state agencies or combination of state agencies; and review operational programs of state agencies in the light of established goals and objectives.

(b) The council shall aid the several state agencies in establishing sound planning practices for the programming of their future operations.

(c) The council shall obtain, at least biennially, from each state agency proposed plans covering the agency's operations for the following two years and the following six years. Such plans shall include estimates of needs which the agency will be expected to meet and measures and means which must be provided to meet such needs, and such other matters as the council may direct.

(d) The council shall utilize such agency plans to formulate an inclusive operational program setting forth priorities and including a capital budget program which it shall update and adopt biennially and transmit to the general assembly.

(e) The Connecticut interregional planning program, conducted by the Connecticut development commission, the state highway department and the department of agriculture and natural resources and such other agencies as the council may designate shall prepare a plan or plans for the development of the state which shall include, but not be limited to, recommendations for the best use of land, the best arrangement of public facilities and open spaces, transportation facilities and means of maintaining a viable economy, taking into account plans and responsibilities of municipalities and regions of the state. Such plan, plans or portion thereof when accepted by the participating agencies of the Connecticut interregional planning program shall be submitted to the state planning council for review and approval. The state planning council shall submit to the continuing committee on state planning such plan, plans or portion thereof which it has approved along with the council's recommendations for legislative action.

Sec. 4. The council may appoint an executive secretary and may engage such other staff as may be necessary in furtherance of its duties. The council may be assisted, at its request, by any agency of the state.

Sec. 5. There is established a continuing committee on state planning and development to consist of eight members, four to be members of the senate who shall be appointed by the president pro tempore of the senate and four to be members of the house of representatives who shall be appointed by the speaker of the house.

Sec. 6. Duties. (a) The committee shall establish broad goals and objectives for the physical and economic development of the state and shall transmit such goals and objectives to the state planning council.

(b) The committee shall receive from the state planning council any plan, plans or portion thereof adopted by the council and shall consider the effect of such plans on state goals and objectives.

Sec. 7. The sum of forty thousand dollars is appropriated to the state planning council to carry out the purposes of this act.

Sec. 8. Nothing contained in legislation creating a state planning council shall operate to limit, restrict or alter planning powers conferred upon departments, department heads, agencies or instrumentalities of the state, regional planning agencies, or municipalities by any existing law.

STATEMENT OF PURPOSE: To provide for the coordination of state planning responsibilities within both the legislative and executive branches.

AN ACT CONCERNING INTERSTATE PARTICIPATION IN REGIONAL PLANNING.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Any regional planning agency established under the provisions of chapter 127 of the general statutes may accept, from any town, city or borough contiguous to the area of operation of the regional planning agency but located in another state, a petition enacted by the legislative body of such town, city or borough, requesting inclusion in the area of operation of such agency. The regional planning agency shall forward such petition to the Connecticut Development Commission, accompanied by a report from the regional planning agency with recommendations regarding it. The Connecticut Development Commission shall study such petition and report, shall confer with the state agency, if any, in the state in which such town, city or borough is located which is similarly concerned with regional planning and may redefine the region to include the town, city or borough which has submitted the petition. If the redefinition is made, the area of operation of the agency shall be extended accordingly, and the agency may accept such town, city or borough into membership in the agency if the town, city or borough is authorized to and does adopt the provisions of said chapter 127 and votes to join the agency by act of its legislative body. Any regional planning agency which includes in its area of operation any area of an adjacent state shall file its annual report, notice of hearing on the plan of development and of adoption thereof with the state agency, if any, in such state which is similarly concerned with regional planning. All other provisions of said chapter 127 shall apply in the case of a region including an area in another state, except that representation requirements for establishment of the agency and for cessation of the agency shall be based on Connecticut municipalities alone. Any town, city or borough situated in Connecticut which is not included within a planning region as defined by the Connecticut Development Commission is authorized to become a member of a regional planning agency organized under the statutes of an adjoining state, upon notice by the legislative body of such municipality to the Connecticut Development commission of its intent to do so and upon approval by the Connecticut Development Commission of such action. Such municipality is authorized to take appropriate steps to adopt the appropriate regional planning enabling legislation of the adjoining state, to hold membership in the regional planning agency, provide financial support for the agency and otherwise hold full membership as authorized by the adjoining state.

STATEMENT OF PURPOSE: To authorize regional planning agencies to include municipalities of adjoining states within their area of operation and municipalities of this state to join regional planning agencies in adjoining states.

F. Rhode Island

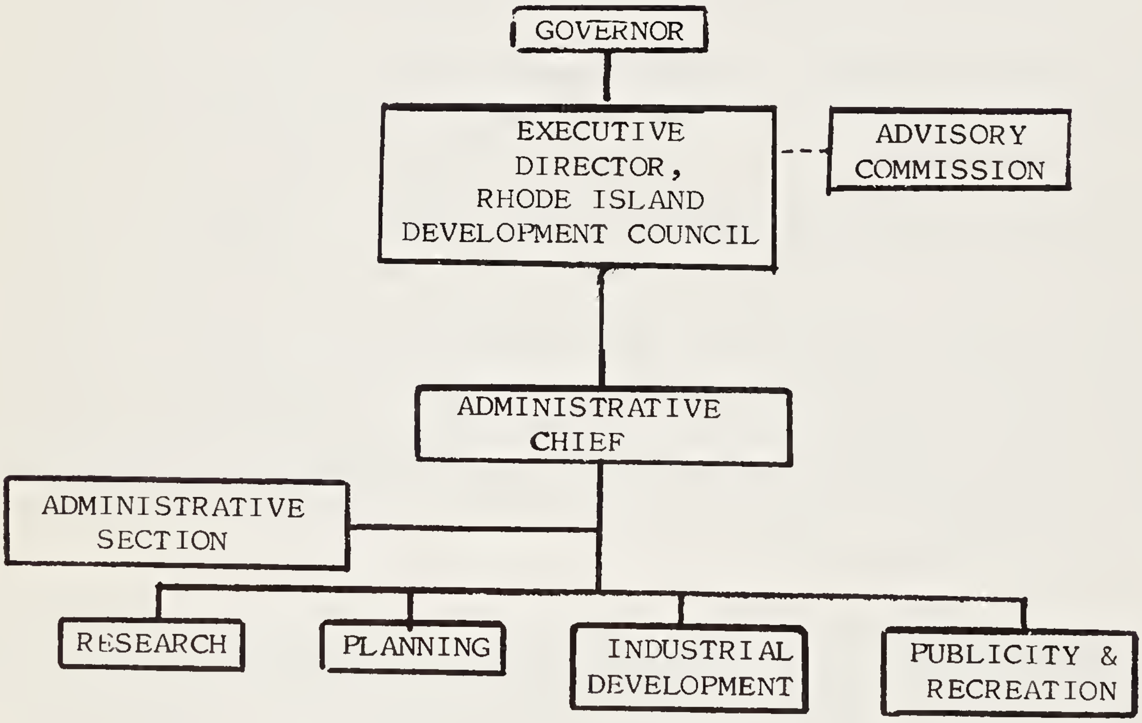
1. The Planning and Development Agency

The main planning and development agency is the Rhode Island Development Council, located in the Governor's Office, and headed by an Executive Director appointed by the Governor. An Advisory Commission reports to both the Governor and the Executive Director. The Director is assisted by an Administrative Chief, and Council operations are supported by an administrative section. [1]

The Council is divided into four divisions: Research, Planning, Industrial Development, and Publicity and Recreation. The Research and Planning Divisions provide information and services to the Governor, General Assembly, state departments, and cities and towns. The Planning division is responsible for overall state planning, regional planning, planning assistance to local communities, preparation of the state capital budget, and natural resource planning.

The divisions of Industrial Development and Publicity and Recreation offer information and services in connection with industrial location, defense contract assistance, and tourism; to individuals and groups both within and outside the state.

Main Agency Organization


GOVERNOR
EXECUTIVE DIRECTOR, RHODE ISLAND DEVELOPMENT COUNCIL
ADVISORY COMMISSION
ADMINISTRATIVE CHIEF
ADMINISTRATIVE SECTION
RESEARCH
PLANNING
INDUSTRIAL DEVELOPMENT
PUBLICITY & RECREATION

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[1] Title 42, ch. 26, General Laws of Rhode Island (1956)

2. Economic Development

Economic development activities are primarily the responsibility of the Rhode Island Development Council and its Division of Industrial Development. The Council maintains formal liaison with other state agencies through its planning operations, and informal liaison is also maintained for development purposes. Coordination of planning and development functions are reported to be close.

a. State-Level Development Organizations. Rhode Island has established three state-level development organizations, and is in the process of creating a fourth. Those already established are:

1. The Rhode Island Business Development Credit Corporation, which operates under a special state charter.
2. The Rhode Island Industrial Development Foundation
3. The Rhode Island Industrial Building Authority. (Will guarantee industrial mortgages held by local development corporations, or the state Development Foundation, up to 90%)

In the process of establishment is the Rhode Island Recreational Building Authority.

The Industrial Development Foundation was established to compensate for a relative lack of organization for economic development at the local level, which existed some years ago. Because the state constitution prohibits the use of public monies for private purposes, state funds or pledging of the state's credit through operations of the Building Authority could only be made to non-profit local development corporations. In the absence of such corporations, the state Foundation was established to facilitate the operations of the Building Authority.

Informal liaison is maintained between the Commissioner and both the Development Credit Corporation and the Industrial Development Foundation. In addition, the Executive Director is Acting Manager of the Industrial Building Authority, and will be Acting Manager of the Recreational Building Authority.

The Recreational Building Authority was originally established in 1964 to insure mortgages for recreational building, similar to operations of the Industrial Building Authority. The Authority never became operative, however, due to the presence of some legal questions connected with voter understanding of the terms of the referendum in which it was approved. As this is written, a new bill has been submitted to the legislature and approved. It is scheduled to appear on a special election ballot with some related matters in June, 1966.

b. Local Development Groups. As mentioned above, it is only recently that organization for economic development has occurred at the local level. The relatively small size of the state has not been conducive to the creation of regional development organizations. As of 1963 there were twenty-one local industrial development commissions, however, and there are probably more today -- although how many are currently active has not been ascertained. No regional development organizations, below the state level, have been identified.

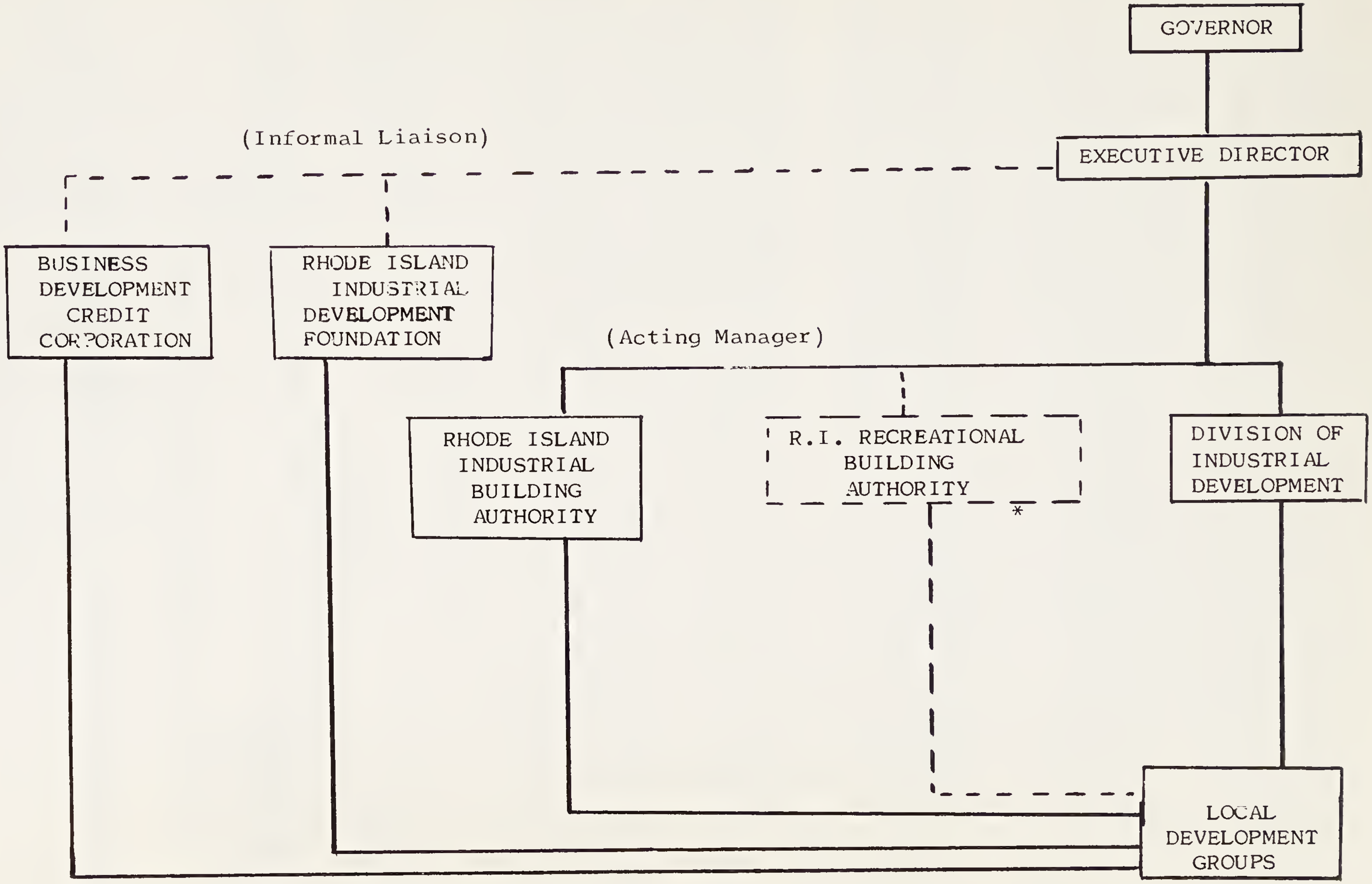
In addition to its other functions, the Division of Industrial Development has been active in helping local development groups to organize and develop programs, and cooperates with them in working with industrial prospects.

c. State-Level Development Activities. State legislation exists authorizing local government units to offer tax exemptions to manufacturing enterprises for up to ten years. More recent legislation also permits these units to offer industry a tax stabilization plan similar to that described in the Vermont section. In addition, local governments are authorized to issue revenue bonds for Industrial development purposes.

It is reported that success of the state's industrial development program has permitted the Development Council to place increasing emphasis in the last few years upon its tourist promotion program.

d. Rhode Island State Commission on Economic Goals. In May, 1965, the state legislature passed S. 726 (Res. 39, 1965): "Creating a Special Commission to Study the Entire Field of Economic and Industrial Development of Rhode Island and to Determine the Feasibility of Establishing a Department of Commerce and Industry Within the Structure of the State Government." The Commission is in the process of formulating its activities, and is applying to the U.S. Economic Development Administration for a technical assistance grant to further its study.

DEVELOPMENT ORGANIZATION


GOVERNOR
EXECUTIVE DIRECTOR
(Informal Liaison)
BUSINESS DEVELOPMENT CREDIT CORPORATION
RHODE ISLAND INDUSTRIAL DEVELOPMENT FOUNDATION
(Acting Manager)
RHODE ISLAND INDUSTRIAL BUILDING AUTHORITY
R.I. RECREATIONAL BUILDING AUTHORITY
*
DIVISION OF INDUSTRIAL DEVELOPMENT
LOCAL DEVELOPMENT GROUPS

* Note: Not yet operative, see text

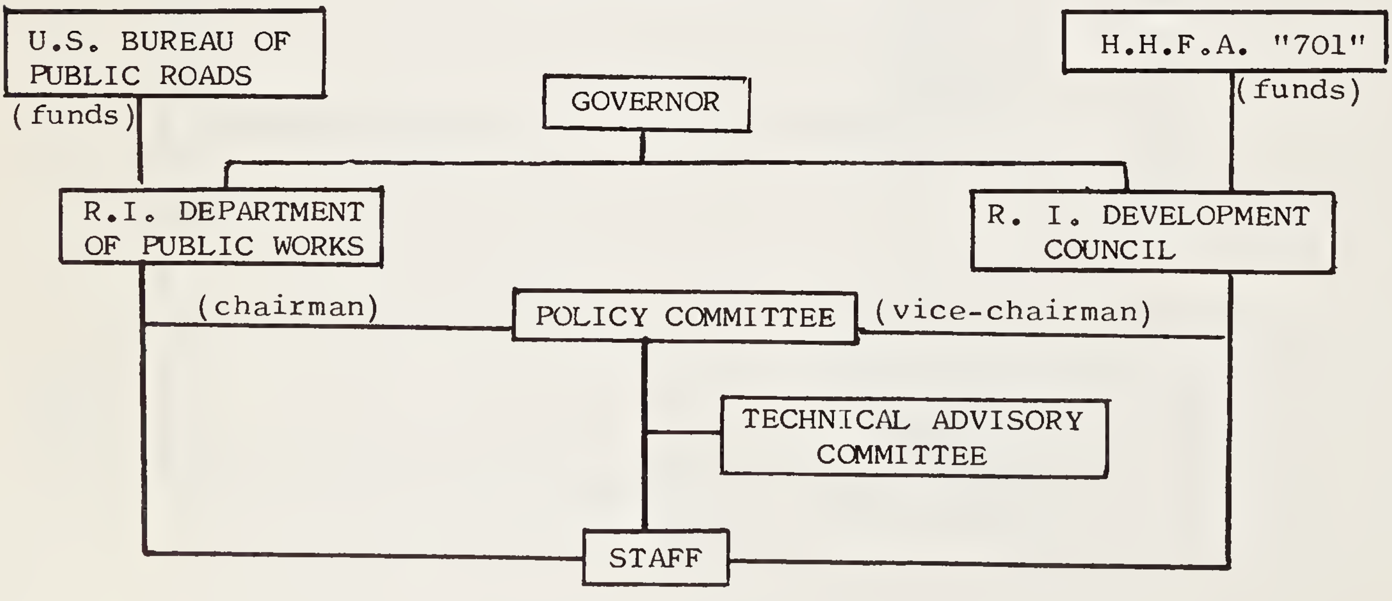
3. Planning

The agency with primary responsibility for planning is the Rhode Island Development Council, and through the Council, its Division of Planning, and the Rhode Island State-Wide Comprehensive Transportation and Land Use Planning Project (hereafter referred to as the state planning project). With the exception of such planning activities as take place within individual operating agencies, all planning is centralized in the Rhode Island Development Council: state planning, local planning assistance, and capital budgeting. In addition, the Council and its Division of Planning must review and approve capital projects, and the acquisition and disposal of state lands. As noted earlier, the formal liaison with other state agencies which are a part of planning operations, are channeled through the Director, and hence are made to serve development operations as well.

a. State-Level Planning. State planning is the responsibility of the Division of Planning. A large portion of state planning efforts are currently being channeled, however, through the state planning project, under the joint administration of the Development Council and the Department of Public Works. The project is financed in part through funds from the U.S. Bureau of Public Roads and an H.H.F.A. "701" grant.

The project is headed by a policy committee, supported by a technical advisory committee, and operates with a temporary staff of twenty-three. The Development Council and Department of Public Works are represented at two levels: in the policy committee and on the staff. Chairman of the policy committee is the Director of the Department of Public Works; the Director of the Development Council is Vice Chairman. Other members are the Director of Administration, representatives of the State Transportation Authority, several Mayors, the Departments of Natural Resources and Business Regulation, and a representative of the U.S. Bureau of Public Roads. Membership on the Technical Advisory Committee is composed of representatives of all relevant state agencies.

State Planning Project


U.S. BUREAU OF PUBLIC ROADS
(funds)
GOVERNOR
H.H.F.A. "701"
(funds)
R.I. DEPARTMENT OF PUBLIC WORKS
R. I. DEVELOPMENT COUNCIL
(chairman)
POLICY COMMITTEE
(vice-chairman)
TECHNICAL ADVISORY COMMITTEE
STAFF

Three additional points should be noted:

> Although financial participation in the State-Wide Planning Project is presently limited to the two state agencies and the two federal agencies, it has been possible, through the extensive use of working committees, and memos of agreement, to actively involve all Rhode Island cities and towns, and most state agencies in the planning process.
>
> The Project.... is coordinated on a day-by-day basis with other planning activities taking place in Rhode Island, including the local planning assistance program of the Development Council and the planning programs of the individual cities.
>
> In addition to the special State-Wide Planning Project, the Rhode Island Development Council carries on a continuing program of current state planning, including, among others, coordination of agency plans, preparation of the annual Development Budget, and a Property Referral function. [1]

b. Local Planning. Because Rhode Island is a small state, there is no regional planning as such. What might be regional planning in another state, is in effect state planning here. Liaison is maintained, however, with the Southeastern Massachusetts Regional Planning Project and the Eastern Massachusetts Regional Planning Project.

There are 8 cities and 31 towns in Rhode Island. Seven of the cities have their own professional planning staff. The 1963 OEDP (currently being revised) showed all but six towns having a town planning board, and three cities with redevelopment agencies. The number may be greater now.

The Planning Division administers local "701" planning programs, and the Division's staff does the actual planning. This differs somewhat from other states, in many of which local planning under the "701" program -- when not performed by the locality's own staff -- is let out to consultants.

The Division also offers a community assistance program, which was active in 26 communities in 1963. Cooperation between state and local planning staffs is further encouraged by the fact that permanent professional planners at the local level are frequently former members of the state planning staff.

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[1] See page 4 of the Rhode Island entry in: Klar, Some Pertinent Information About State Planning Programs (Hartford: Council of State Planning Agencies, 1965)

The Bureau of Government Research at the University of Rhode Island also offers technical services to local communities, but the extent to which these are meshed with either state or local planning efforts has not been ascertained.

c. Capital Budgeting. Hillhouse and Howard describe the capital budgeting process in Rhode Island as follows:

> The annual development budget and the six-year development "program" are prepared by the Planning Division of the State Development Council, a part of the executive department. The Development Council has an Advisory Commission which assists in making capital-improvement recommendations to the Governor. The Governor and his budget staff determine what projects will be recommended in the development budget, which is an integral part of the operating budget. All state agencies and departments are included in this budget. The projects are primarily financed through bonds, but elaborate procedures have been devised for apportioning the current revenues appropriated to capital improvements. 1/

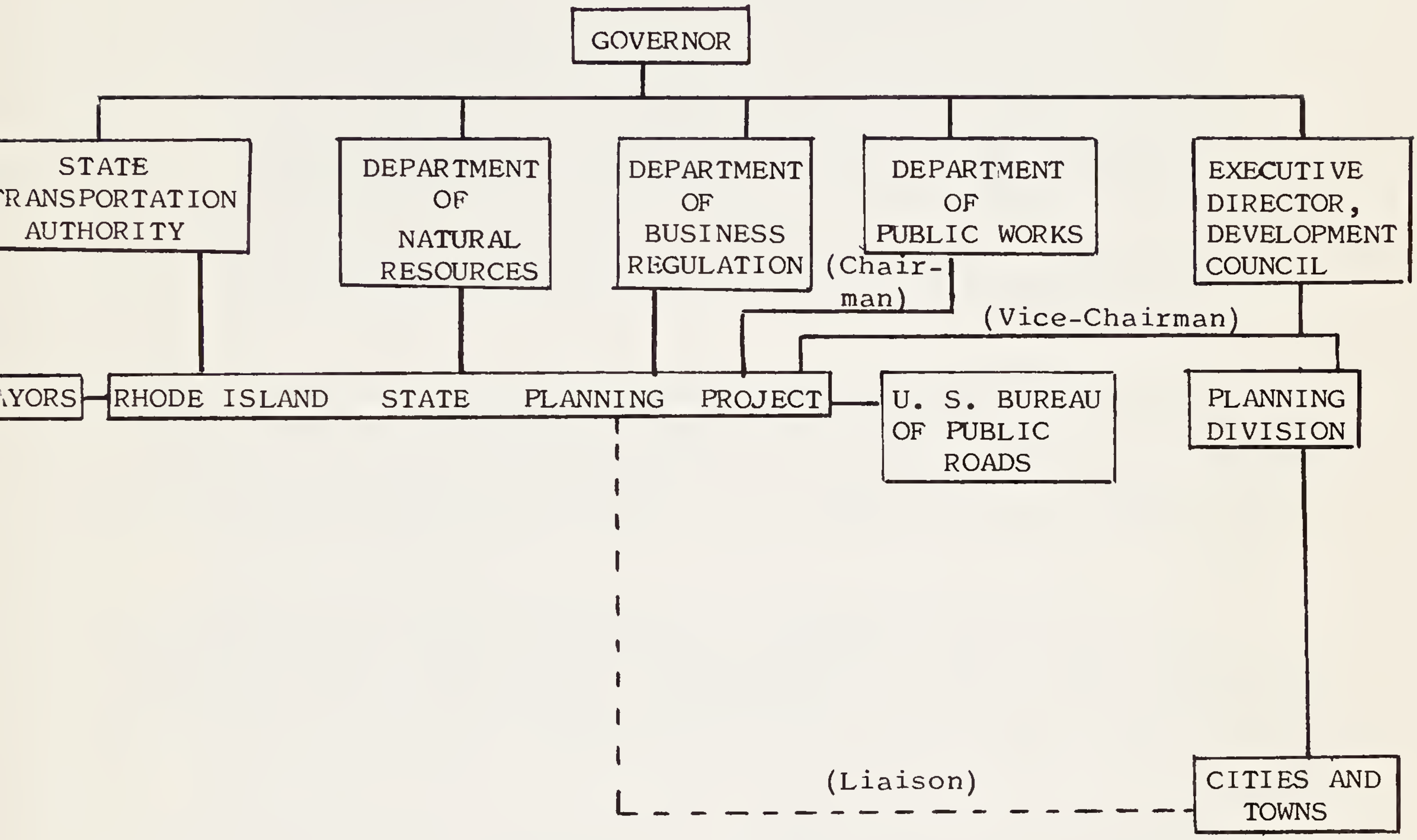
A note states: "The Rhode Island six-year development program is actually a long-range budget because sources of funds of all types are also projected for the six year period."

Organizational Note: Some years ago the Rhode Island Little Hoover Commission recommended that the planning function be transferred from the Development Council to the Department of Administration, and that it be divided into three separate sub-functions: state-wide planning, local community planning assistance, and capital budgeting. This recommendation was not accepted, however.

As noted earlier, a legislative commission has recently been established, one part of whose mandate is to explore the feasibility of establishing a Department of Commerce. What effect this form of organization would have upon the relationship of the planning and development functions is unclear.

1/ A. M. Hillhouse and S. Kenneth Howard, State Capital Budgeting (Chicago: Council of State Governments, 1963), pp. 159-60.

PLANNING ORGANIZATION


GOVERNOR
STATE TRANSPORTATION AUTHORITY
DEPARTMENT OF NATURAL RESOURCES
DEPARTMENT OF BUSINESS REGULATION
DEPARTMENT OF PUBLIC WORKS
EXECUTIVE DIRECTOR, DEVELOPMENT COUNCIL
(Chairman)
(Vice-Chairman)
YORS
RHODE ISLAND STATE PLANNING PROJECT
U. S. BUREAU OF PUBLIC ROADS
PLANNING DIVISION
(Liaison)
CITIES AND TOWNS

G. Regional Agencies and Associations in New England

1. Introduction

A 1947 report of the Directive Committee on Regional Planning of Yale University, after concluding that the New England states formed a distinct and appropriate area for regional planning, went on to comment.

> The trouble is that New England is not managing itself as a region -- as an integrated, harmonious organism rationally adapting its every means to the completest fulfillment of clarified goals. Its various political subdivisions, with little central intelligence and coordination are, on the contrary, riding off in all directions at once, or in competing directions, or in no direction at all. The region as a whole is confused about its goals; it is poorly informed about its conditions and basic trends; it has no effective means of appraising, selecting, or creating appropriate instruments for the achievement of regional goals. 1/

The point being made was not that New England did not have a regional consciousness, but that this consciousness was not being served; that New England values and objectives were not being determined and pursued on a rational regional basis "through action at all levels of government and private associations."

Eighteen years later, in an article on interstate cooperation in New England, Edwin W. Webber indicated a somewhat changed state of affairs. 2/ His article identified twenty associations of state officials in New England, and New England state participation in a number of interstate compacts. He could have added still more, had he wished.

The existence of these interstate mechanisms is no guarantee of their success in meeting either stated goals or actual needs of the region. Nor does their existence necessarily mean that the New England states are making a coordinated effort at goal-setting, and planning to achieve these goals. It does indicate, however, recognition of the need for interstate communication in specific areas of responsibility, cooperation in the performance of certain specific functions, and the willingness to tread in the paths of regionalism.

Most of these mechanisms are not specifically concerned with economic

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1/ Directive Committee on Regional Planning of Yale University, The Case for Regional Planning with Special Reference to New England (New Haven: Yale University Press, 1947), pp. 67-68.

2/ Edwin W. Webber, "Regional Cooperation: A Modus Vivendi for New England," State Government, Vol. XXXVIII, No. 3 (Summer, 1965), pp. 186-190.

development, per se. But the areas of responsibility or interest with which they are concerned frequently have, or could have, substantial impact upon the New England economy. This being so, they represent a major resource for planning and development on the New England regional level.

These interstate mechanisms may be grouped under four main headings:

1. Associations of state officials performing like functions.
2. Interstate compact agencies.
3. Regional agencies established under federal legislation.
4. Non-governmental institutions with region-wide interests and associations of non-governmental professionals performing like functions.

There follows a listing of interstate mechanisms in each of the four categories:

2. Associations of State Officials

The New England Governors' Conference (with secretariat)
The New England Governors' Conference of Milk Officials
The New England Governors' Committee on Personnel Management
The New England Governors' Traffic Safety Conference
The New England State Police Administrators' Conference
The New England Conference of State Aviation Officials
The New England Conference of State Agriculture Commissioners
The New England Conference of Commissioners of Education
The New England Librarians' Association
The New England State University Bureaus of Government Research
The New England Conference of Public Utility Commissioners
The New England Conference of State Public Health Officials
The New England Conference of State Public Welfare Officials
The New England Conference of Parks and Recreation
The New England Conference of State Budget Officers
The New England Fiscal Agents Association
The New England State Purchasing Officers' Conference
The New England Conference of Workmen's Compensation Officials
The New England Conference of State University Cooperative Extension Service Directors
The New England State Tax Officials Association
The New England - New York Planning Workshop
The Northeast State Governments Conference on Mental Health
The Northeastern Resources Committee

3. Interstate Compacts and Compact Agencies 1/

The New England Board of Higher Education
The New England Water Pollution Control Commission
The New England Library Compact
The New England Corrections Compact
The New England State Police Compact
The New England Health Services and Facilities Compact (Inactive)
The Northern New England Health Needs Compact
The Northeastern Forest Fire Protection Commission
    (New England states and New York)
The Interstate Compact on Mental Health (all six New England states)
The Atlantic Marine Fisheries Commission (includes five N. E.
    states on the Atlantic shore)
The Tri-State Transportation Commission
    (Connecticut, New York, and New Jersey)
The Interstate Sanitation Commission (Connecticut, New York and
    New Jersey)
The Connecticut River Valley Flood Control Commission
The Merrimack River Valley Flood Control Commission
The Thames River Valley Flood Control Commission
The Maine-New Hampshire Interstate Bridge Authority
The New York-Vermont Interstate Commission on the Lake
    Champlain Basin
The Lake Champlain Bridge Commission (Vermont-New York)

4. Regional Agencies Established Under Federal Legislation

The New England Regional Action Planning Commission
The New England River Basins Commission

These are both currently in the process of formation, pursuant to the Public Works, and Economic Development Act of 1965 and the Water Resources Planning Act of 1965.

5. Non-Governmental Institutions and Associations 2/

The New England Council
The New England Economic Research Foundation

1/ For a brief Organizational description of most of these agencies see: Directory of Interstate Agencies (Chicago: Council of State Governments, 1965).

Not listed are a series of civil defense compacts concerning which information was not ascertained.

2/ These are meant to be examples only, not a complete list.

The Federal Reserve Bank of Boston
The New England Center for Continuing Education
The Boston University Area Development Center
The New England Public Health Association
The New England District of the American Industrial Development Council

Two examples of non-governmental interstate agreements, both drawn from the health field, may be of interest.

1. The interstate program of continuing education offered by the Postgraduate Medical Institute, and somewhat broader program of continuing education and services of the Bingham Associates Fund.

2. The tri-state agreement whereby the Massachusetts Hospital Association performs a central purchasing function for hospital supplies for its members and, on a contract basis, for those of the Connecticut and Rhode Island Hospital Associations.

Other Interstate Cooperative activities currently in process include the following:

1. Two compacts are currently pending before the legislatures of the New England states:

   The New England Radiological Health Compact
   The New England Regional Planning Compact

2. A number of the New England states are making a joint application for federal programs, or taking joint action to implement such programs:

   a. all six states are applying jointly for funds under the Law Enforcement Assistance Act of 1965, in the areas of Corrections and Public Safety.

   b. five of the six states (Connecticut excepted) are undertaking a joint preliminary study under the terms of the State Technical Services Act of 1965.

   c. three of the six states (New Hampshire, Massachusetts, and Rhode Island) have reached tentative agreement to form a joint Heart, Cancer, and Stroke region pursuant to the Heart Disease, Cancer and Stroke Amendments of 1965.

3. All six New England states operate a joint tourist information center in New York and Chicago.

The table on the following page indicates New England state participation in major interstate mechanisms more or less directly affecting economic development in the New England region. Limitations on time prevent detailed analysis of the organization and operation of interstate agencies, organizations, and associations. A study along these lines is needed, however, and should be undertaken. Given the response of the New England region to five pieces of federal legislation passed in 1965, and the likelihood that future federal legislation will continue to have a regional focus, particular attention should be devoted to the impact of federal legislation on regional organization in New England. 1/

1/ The five pieces of legislation, already mentioned in the text, are: the Heart Disease, Cancer and Stroke Amendments of 1965; the Law Enforcement Assistance Act of 1965; the Public Works and Economic Development Act of 1965; the State Technical Services Act of 1965; and the Water Resources Planning Act of 1965.

NEW ENGLAND STATES PARTICIPATION IN SOME MAJOR INTERSTATE MECHANISMS AFFECTING ECONOMIC DEVELOPMENT

STATE	New England Higher Education Compact	New England Interstate Water Pollution Control Compact	Atlantic States Marine Fisheries Compact	Tri-State Transportation Compact	Interstate Compact On The Lake Champlain Basin	New England Regional Action Planning Commission	New England River Basins Commission	Northeastern Resources Committee
Maine	X	X	X	--	--	X	X	X
New Hampshire	X	X	X	--	--	X	X	X
Vermont	X	X	--	--	X	X	X	X
Massachusetts	X	X	--	--	X	X	X	X
Connecticut	X	X	X	X	--	X	X	X
Rhode Island	X	X	X	--	--	X	X	X
Other	--	New York	10 other Atlantic Seacoast states	New York New Jersey Federal Agencies	New York	Federal Appointee	New York and Federal Appointee	Federal Representation

V. Bibliography [1]

A. Maine

1. State

1. Departmental Sources of Statistical Data (Augusta: Maine Department of Economic Development, 1964)

2. Planning for Development in the State of Maine (Brunswick: Northeastern Research Foundation, 1965)

3. Planning Study for the Economic Growth of the State of Maine (Armour Research Foundation, Illinois Institute of Technology, 1961)

Departmental Sources of Statistical Data, (Augusta: Department of Economic Development, 1964)

2. Regional

a. Androscoggin Valley

4. The Economy of the Androscoggin Region (Brunswick: Northeastern Research Foundation, for the Department of Economic Development and the Androscoggin Valley Regional Planning Commission, 1964). There is also a Summary of the Report.

5. Lewiston-Auburn Traffic and Parking Study (Edwards and Kelcey, for the State Highway Commission, 1958)

b. Knox County

6. Knox County Regional Plan. Phase I. Existing Conditions (Mineral Potential, Transportation, Population, Economy, Land Use) (James W. Sewall Co., 1961)

7. Knox County Regional Plan. Phase II. The Natural Resources of Knox County, Maine (James W. Sewall Co., 1963)

c. Penobscot Bay - Mount Desert

8. Stelling, Lord-Wood, and Van Suetendael: The Area (1962)

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[1] The bibliography is intended to be illustrative; it is neither select nor comprehensive.

9. Stelling, Lord-Wood, and Van Suetendael: The People and Their Economy (1962)

10. Stelling, Lord-Wood, and Van Suetendael: Recreation (1962)

11. Stelling, Lord-Wood, and Van Suetendael: Transportation and Public Facilities (1962)

12. Stelling, Lord-Wood, and Van Suetendael: General Development Plan (1962)

d. Greater Portland

13. Fact Manual of the Great Portland Planning Region, A Series (Boston: A. D. Little)

14. Greater Portland Planning Region: Economic Problems and Opportunities (Boston: A. D. Little, 1960)

15. Land Use and Highway Plan 1975 (Portland: Greater Portland Regional Planning Commission, 1958)

16. Portland Area Comprehensive Transportation Study (Augusta: Department of Economic Development and Maine Highway Commission, 1965)

e. York County

17. York County Regional Planning Commission Progress Report: (March, 1966)

18. York County Regional Plan (James W. Sewall Co., 1963) 4 Vols. (County O E D P)

3. Local

Note: Roughly seventy local communities have completed or are in the process of completing comprehensive planning studies under "701" grants. Completed studies are available at the library of the Department of Economic Development.

B. New Hampshire

1. State

19. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 1 Baker River Watershed, (Concord, N.H., State Planning Project, March, 1964).

20. New Hampshire State Planning Project, LAND-WATER-RECREATION,

Report No. 2 Forest Management for Better Living in New Hampshire (Concord, N.H., State Planning Project, June 1964).

21. Dr. James R. Bowring, Population of New Hampshire, LAND-WATER-RECREATION Report No. 3 (Concord, N. H. State Planning Project, May 1964).

22. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 4 Travel Habits of the Motorist in New Hampshire, (Concord, N. H., State Planning Project, September 1964).

23. Sno-Engineering, Inc., LAND-WATER-RECREATION, Report No. 6 Northeast Skier Market, (Concord, N.H., State Planning Project, November 1964).

24. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 7 The Privately-Owned Campgrounds of New Hampshire, (Concord, N.H., State Planning Project, March 1965).

25. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 8 Travel Habits of the Motorist in New Hampshire - Part II Winter (Skier) (Concord, N. H., State Planning Project, April 1965).

26. Systems Analysis and Research Corporation, LAND-WATER-RECREATION, Report No. 9, Economic Impact of Recreation, Vacation and Travel on New Hampshire (Concord, N.H., State Planning Project, July 1965).

27. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 10 The Water Resources of New Hampshire (Concord, New Hampshire, State Planning Project, September 1965).

28. New Hampshire State Planning Project, LAND-WATER-RECREATION, Report No. 11 Land Surveying in New Hampshire, (Concord, N.H., State Planning Project, November 1965).

2. Regional

29. Silas B. Weeks, Economic Base Study, Grafton County, N.H., (Concord, N.H., Department of Resources and Economic Development, December 1963).

30. Seacoast Regional Development General Committee, A Prospectus for Planning: The Seacoast Region. (April 23, 1964)

31. Seacoast Regional Development General Committee, The Seacoast Regional Planning Project: Report of Progress, (September 27, 1964)

32. List of Technical Bulletins Issued by the Manchester Metropolitan Planning Study.

1. Summary Review of Field Surveys by: Department of Resources & Economic Development, August 20, 1965.

2. Community Facilities Plan - Notes by: Manchester Planning Board, September 14, 1965.

3. Organization of the Manchester Metropolitan Planning Study by: Department of Resources & Economic Development, September 27, 1965.

4. Preliminary Economic Analysis by: Wilbur Smith Associates, October 8, 1965.

5. Proposal for Regional Planning Commission by: Department of Resources and Economic Development, December 1, 1965.

6. Preliminary Development Factors Analyses and Projections by: Wilbur Smith Associates, December 1, 1965.

C. Vermont 1/

33. Reports prepared for the State Central Planning Office as part of the Comprehensive State Planning Program (Phase I - Inventory Stage).

34. Central Planning Office
STATE PLANNING IN VERMONT (January, 1964)

35. Sargent-Webster-Crenshaw & Folley
METHODS AND PROCEDURES FOR CONDUCTING MULTI-PURPOSE PLANNING SURVEYS USING ELECTRONIC DATA PROCESSING TECHNIQUES
POPULATION - STATE OF VERMONT (May, 1963)
LABOR FORCE - VERMONT (November, 1963)
INCOME - STATE OF VERMONT (May, 1963)
AN ECONOMIC ANALYSIS OF AGRICULTURE IN THE STATE OF VERMONT (February, 1964)
POTENTIALS FOR INDUSTRIAL DEVELOPMENT IN VERMONT (December, 1963)
RETAIL, WHOLESALE AND SELECTED SERVICES - VERMONT* (August, 1964)

1/ Klar, State Planning Programs (Hartford: Council of State Planning Agencies, 1965)

* Presently out of stock.

TRANSPORTATION - VERMONT* (1964)

36. Vermont Resources Research Center - University of Vermont
    - #1 NATURAL AREAS - Vogelmann* (June, 1964)
    - #2 STATE AND LOCAL TAXATION AND FINANCE IN VERMONT - LeSourd and Sinclair (June 1964)
    - #3 THE OUTDOOR RECREATION INDUSTRY IN VERMONT - Bevins* (June, 1964)
    - #4 PHYSICAL, ECONOMIC, ADMINISTRATIVE REGIONS IN VERMONT - Tompkins, Miles, Boynton, Sargent* (June, 1964)
    - #5 TRENDS IN LAND USE, 1673-1964 - Sargent (June, 1964)
    - #6 VERMONT LAND CLASSES - Sykes* (June, 1964)
    - #7 TRENDS IN VERMONT AGRICULTURE - Sykes (October, 1964)
    - #8 PROJECTED LAND USE FOR AGRICULTURE - Sargent (June, 1964)
    - #9 THE RURAL LAND MARKET IN VERMONT - Sykes (June, 1964)
    - #10 MIGRATION FROM FARMING IN CENTRAL VERMONT - Sykes* (November, 1964)
    - PUBLIC HIGHER EDUCATION FACILITIES - Bankus and White (1964)
    - NATURAL RESOURCES - VERMONT - Sargent* (December, 1964)
    - EDUCATIONAL FACILITIES AND ADMINISTRATIVE DISTRICTS - Dunham* (1964)

37. Northeast Planning Associates
    - CORRECTIONAL INSTITUTIONS* (June, 1964)
    - GENERAL HEALTH, MENTAL HEALTH & WELFARE FACILITIES* (July, 1964)
    - QUALITY OF LOCAL WATER SUPPLIES* (July, 1964)
    - NATURAL GAS, ELECTRIC AND TELEPHONE UTILITIES* (July, 1964)
    - LIBRARY FACILITIES* (July, 1964)

38. Marie Sealy
    - ECONOMIC IMPACT OF SELECTED COLLEGES UPON THE COMMUNITY AND REGION IN WHICH THEY ARE LOCATED* (May, 1964)

39. Cebelein & Willis
    - THE ECONOMIC SIGNIFICANCE AND IMPACT OF PRIMARY RECREATIONAL FACILITIES ON SELECTED AREAS IN VERMONT* (1964)

40. Technical Planning Associates
    - RECREATIONAL SITE POTENTIAL IN VERMONT (1964)
    - INDUSTRIAL SITE POTENTIAL IN VERMONT (1964)

41. Water Resources Department
    - WATER SUPPLY FACILITIES AND IMPOUNDMENTS* (1964)

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* Presently out of stock.

42. Joseph Marshall
INTERGOVERNMENTAL PAYMENTS AND TRANSFERS (June, 1964)

43. James Wilson
A BRIEF SURVEY OF STATE AND LOCAL FINANCE ADMINISTRATION IN VERMONT (August, 1964)

44. Scheele & Squire
VERMONT POPULATION PROJECTIONS TO 1990 (September, 1964)

45. Tax Department
A PRELIMINARY REPORT ON PROPERTY TAX ASSESSMENTS IN VERMONT (June, 1964)

46. Commissioner of Taxes
A REPORT OF EQUALIZATION (December, 1963)

47. Central Planning Office
SUMMARY REPORT OF STUDIES - Jane Yamamoto[1/] * (1964)

D. Massachusetts

1. State

Note: A bibliography of state publications is available from the Department of Commerce and Development.

2. Regional

a. Boston and the Metropolitan Area

48. Boston Regional Survey. A series of reports prepared by the Planning Services Group, Cambridge, Massachusetts (1962). Various subject titles:

Rail Roads
Population
Land Use
Economic Base
Public Transportation
Ports and Airports

[1/] Presently out of stock. See also: Bibliography of State Departmental Studies, Reports, Statistics, Etc., by Planning Topic, CPO Bulletin No. 4 (1963)

* Presently out of stock.

49. *Economic Impact Study of Massachusetts Route 128*. Prepared for the Massachusetts Department of Public Works and the U. S. Bureau of Public Roads by the Transportation Engineering Division, Department of Civil and Sanitary Engineering, M. I. T. (1958).

50. Mass Transportation Commission, *Mass Transportation in Massachusetts* (Final Report of the Mass Transportation Demonstration Project, (Boston, 1964).

51. North Terminal Area Policy Committee of Boston, *North Terminal Area Study: A Comprehensive Plan of Transportation and Related Land Development* (1962).

52. Report of the Massachusetts Little Hoover Commission.

b. Barnstable County

53. Massachusetts Water Resources Commission, *Water Resources in Barnstable County* (Boston, 1963).

54. Massachusetts Department of Natural Resources, Cape Cod Planning Program: *A Sector of the Massachusetts State Plan* (Boston, 1963). Various titles, including:
    - *The Outdoor Recreation Resources of Barnstable County, Mass.*
    - *A Summary of the Study of Marine Resources.*

c. Central Merrimack Valley

55. Central Merrimack Valley Planning District, *Development Trends in the Central Merrimack Valley* (Cambridge, Mass.: Planning Services Group, date?)

d. Lower Pioneer Valley

56. Lower Pioneer Valley Regional Planning District. A series of reports prepared by the Planning Services Group, Cambridge, Massachusetts. (1965). Various titles, including:
    - *Regional Economy*
    - *Population*
    - *Housing Inventory*
    - *Zoning and Sub-Division*
    - *Hospitals and Public Welfare*
    - *Refuse*

e. Southeastern Massachusetts

57. Southeastern Massachusetts Regional Planning Program. A series of ten reports prepared by Blair Associates, Cambridge, Massachusetts. Various titles, including:

Employment and Economic Trends in Southeastern Massachusetts, 1950-1970 (January, 1959)

58. Dr. Melvin R. Levin, Vital Problems in Southeastern Massachusetts. Mimeographed. Date? Dr. Levin is Planning Coordination, Massachusetts Mass Transportation Commission, and Consultant to the Southeastern Massachusetts Regional Planning District, 1957-1962.

3. Local

Note: Planning reports for local communities are available in the Library of the Planning Division of the Department of Commerce and Development.

E. Connecticut

59. CIPP Publications 1/

Name	Date	Availability	Cost	Source
Population	11/62	*	No Charge	Connecticut Interregional Planning Program, Room 157, State Office Building, Hartford, Connecticut
Labor Force	12/62	*	"	
Use of Land	11/62	*	"	
Blight and Urban Renewal	2/63	*	"	
Housing	2/63	*	"	
Appearance of Connecticut	6/63	*	"	
Water	5/63	*	"	
Resource Industries	6/63	*	"	
Community Services #1	8/63	*	"	
Service Industries	9/63	*	"	
Physical Geography	9/63	*	"	
Community Services #2	10/63	*	"	
Public Finance	11/63	*	"	
Manufacturing	11/63	*	"	

1/ Klar, State Planning Programs (Hartford: Council of State Planning Agencies, 1965). A list of publications prepared by the Development Commission may be obtained from the Commission.

Name	Date	Availability	Cost
Government	8/64	*	No Charge
Transportation	4/64	*	"
Connecticut Takes Stock for Action	7/64	**	"
P-42 Study Design	3/64	Available upon individual request	"

* Published during the inventory phase of the Connecticut Interregional Planning Program which was accomplished by the Connecticut Development Commission prior to direct participation by the State Highway Department and the Department of Agriculture and Natural Resources, between 1961 and 1964. Published in limited quantity. Primarily distributed in Connecticut to technical planning and research groups and not currently available for distribution.

** Available upon individual request to Connecticut residents. Already distributed to all state planning agencies. Out-of-state requests must normally be refused due to diminishing supply.

F. Rhode Island

60. Published Reports of the State Planning Project [1]

Name	Date	Availability	Source
Census Tracts (R. I.)	1960	Limited supply	R. I. D. C.
Non-Urban Land (R. I.)	1962	Supply exhausted	R. I. D. C. (RIP-6)
Land Use (R. I.)	1961	Limited supply	"
Physical Conditions (R. I.)	1961	" "	"
Utility Service Areas(R. I.) (Water, Sewer, Gas, & Electric)	1962	" "	"
Land Use Controls (R. I.)	1962	Supply exhausted	"
Metropolitanization & Population Change in R. I.	1961	" "	R. I. D. C. (RIP-8)
Population Projections, R. I. Cities and Towns	1962	Limited Supply	"

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[1] Klar, State Planning Programs (Hartford: Council of State Planning Agencies, 1965)

Name	Date	Availability	Source
Residential Mobility, Migration and Commuting in R. I.	1963	Limited supply	R. I. D. C. (RIP-8)
The People of R. I., 1960	1965	" "	"
Housing Analysis	Sept. 1965	---	"
Land Use Analysis	Sept. 1965	---	"
Economic Analysis	Sept. 1965	---	"
Recreation Guide Plan (R. I.)	Aug. 1965	---	"
Refuse Disposal Study	Sept. 1965	---	"
Program Prospectus	1965	Limited supply	State Planning Project
Study Design	1965	" "	S. P. P.
Cost Accounting Manual	1965	" "	S. P. P.
Organization Manual	1965	" "	S. P. P.

61. Since the program has now completed the work necessary to meet the program's immediate goals, bringing the state into compliance with recent federal legislation, time can now be devoted to documenting our work over the past year. Consequently several reports are now in the process of preparation and will be released sometime in the immediate future. These reports are listed below with the title or subject and tentative completion date for each report.

Title or Subject	Date Due
Population, labor force, and dwelling unit forecasts	6/30/65
Historic sites and features of special planning interest	6/30/65
Transit usage inventory	6/30/65
Transit systems inventory	6/30/65
Cars owned and median family income forecasts	7/15/65
Employment forecasts	7/15/65
Analysis of state development goals and policies	7/15/65
Preliminary transit forecast	7/15/65
Changes in BPR traffic assignment programs and operator's instructions	7/15/65

Title or Subject	Date Due
Travel cost analysis	7/15/65
Analysis of local planning policy documents	7/31/65
Parking inventory	7/31/65
Person trip generation	7/31/65
Tree-Builder theory	7/31/65
1401 edit routines for traffic assignments	7/31/65
Auto-driver trip generation	7/31/65
Synthetic trip generation and distribution	7/31/65
Gravity model calibration	7/31/65
Systems compatability with other states	7/31/65
Land use models (progress)	8/15/65
New Computers	8/15/65
Data Bank	8/31/65
School census data, enrollment, plans, etc.	8/31/65
Transit system planning criteria	8/31/65
Project Control System	8/31/65
Data plotting	8/31/65
1961 traffic assignment checks	8/31/65
Relationship of state-wide planning and local planning	8/31/65
Cohort-survival population forecasts	9/30/65
Modal split model (progress)	9/30/65
Relationship of transit planning by RIPTA and RISPP	9/30/65
Comparison of O-D and US Census data	9/30/65
Airport planning criteria	9/30/65
External PMA survey	9/30/65
Comparison of 1945 and 1961 O-D surveys	9/30/65
State-wide trip tables	9/30/65
1985 corridor analysis	9/30/65

Title or Subject	Date Due
Recreation survey	12/31/65
Network descriptions	2/28/66
Description of alternative transportation systems	3/31/66

Please note that this listing does not include a wide variety of publications prepared by the Development Council, and obtainable from its office.

G. New England Region

1. Regionalism: General

62. Robert G. Dixon, Jr., "Constitutional Bases for Regionalism, Centralization, Interstate Compacts, Federal Taxation," *George Washington Law Review* (October, 1964)

63. Merrill Jensen, Ed., *Regionalism in America* (Madison: University of Wisconsin Press, 1951)

64. Arthur Maas, ed., *Area and Power*, (Glencoe, The Free Press, 1959).

65. Howard W. Odum and Harry E. Moore, *American Regionalism: A Cultural-Historical Approach to National Integration* (New York: Henry Holt and Co. 1938)

2. Regional Planning and Administration

66. Directive Committee on Regional Planning of Yale University, *The Case for Regional Planning, with Special Reference to New England* (New Haven: Yale University Press, 1947).

67. James Fesler, *Area and Administration* (University, Alabama: University of Alabama Press, (1940)

68. Freidman and Alonso, Eds., *Regional Development and Planning* (Cambridge: MIT Press, 1964)

69. James Klar, *Some Pertinent Information About State Planning Programs Operating With Federal Urban Planning Assistance* (Hartford: Council of State Planning Agencies, 1965)

70. Richard May, Jr., *State Responsibilities for Urban Development*. Mimeographed paper presented at the 1963 Government Relations and Planning Policy Conference of the American Institute of Planners, as a proposed position statement. Not Accepted. (Washington, D. C.: American Institute of Planners, 1963.)

71. Ernest E. Melvin, Area Planning and Development: Concepts and Guidelines (Athern, Georgia: University of Georgia Institute of Community and Area Development, 1964)

72. Selma J. Mushkin and Robert Harris, State Economic Programming and Economic Developments, A paper prepared for the Third Regional Accounts Conference, Miami Beach Florida, November 19-21, 1964 (Chicago: Council of State Governments, 1964)

73. Selma J. Mushkin, State Programming and Economic Development (Chicago: Council of State Governments, 1965)

74. National Resources Committee, Regional Factors in National Planning And Development (Washington, D. C.: U. S. Government Printing Office, 1935)

75. New England Regional Planning Commission, Publications:

See in particular: Basic Data for A Tentative and Preliminary Plan for New England (Boston: 1935) Regional Development Plan for New England (Boston, '41) A Decade of Regional Planning in New England (Boston: 1943) Publications No. 72.

76. Peter Self, "Regional Planning and the Machinery of Government," Public Administration, Vol. 42 (Autumn, 1964), pp. 227-239.

77. William L. Slayton, Commissioner, Urban Renewal Administration, Housing and Home Finance Agency, Why the Revival in State Planning? Mimeographed. Paper presented to the Association of State Planning and Development Agencies Washington, D. C., May 26, 1964.

78. State Responsibility in Urban Regional Development (Chicago: Council of State Governments, 1962)

79. U. S. Advisory Commission on Intergovernmental Relations, Governmental Structure, Organization, and Planning in Metropolitan Areas, Prepared for the Senate Subcommittee on Intergovernmental Relations (Washington, D. C.; U. S. Government Printing Office, 1961)

80. U. S. Advisory Commission on Intergovernmental Relations, Impact of Federal Urban Development Programs on Local Government Organization and Planning, Prepared in Cooperation with the Senate Subcommittee on Intergovernmental Relations (Washington, D. C.: U.S. Government Printing Office, 1964)

81. U. S. Housing and Home Finance Agency, National Survey of Metropolitan Planning, Prepared for the Senate Subcommittee on Intergovernmental Relations (Washington, D. C.: U.S. Government Printing Office, Committee Print 26-244 O, 1963.)

82. U. S. Housing and Home Finance Agency, 1964 National Survey of Metropolitan Planning Prepared for the Senate Subcommittee on Intergovernmental Relations (Washington, D. C.: U. S. Government Printing Office, Committee Print 43-910 0, 1965)

83. "Urban Problems and Prospects," Entire Issue of Law and Contemporary Problems, Vol. XXX, No. 1 (Winter, 1965)

84. Paul Ylvisaker, "Administrative Considerations in Regional Planning," Housing, Building and Planning, Nos. 12 & 13 (August, 1960), pp. 80-81.

3. Regional Economics

85. Donald J. Boque, Economic Areas of the United States (Glencoe: Free Press, 1961)

86. Roger E. Bolton, Defense Purchases and Regional Growth (Washington D. C.: The Brookings Institution, Studies of Government Finance, 1966)

87. P. G. Clark, Vulnerability and Recuperation of a Regional Economy (to atomic attack) (Rand Corporation, date?).

88. Economic Factors in Urban Planning Studies, Technical Guide No. 20, Urban Renewal Service, U. S. Department of Housing and Urban Development (1966 ?)

89. James Howell, Federal Fiscal Policies and the Regional Economy (New Haven: Yale University Press, 1955)

90. International Information Centre for Local Credit, Government Measures for the Promotion of Regional Economic Development (The Hague: Martinus Nijhoff, 1964)

91. Norman H. Jones, Jr., The Regional Impact of Federal Fiscal Policy (University of Iowa Press, 1954)

92. George Macesich, Commercial Banking and Regional Development in the United States: 1950-1960 (Tallahassee: 1965)

93. J. Thomas Romans, Capital Exports and Growth Among U. S. Regions (Middletown, Connecticut: Wesleyan University Press, 1965)

94. C. A. R. Wardwell, Regional Trends in the U. S. Economy (Washington, D. C.: U. S. Office of Business Economics, U. S. Government Printing Office.)

95. H. S. Perloff, How a Region Grows: Area Development in the U. S. Economy (New York: Committee for Economic Development, Supplementary Paper No. 17, 1963)

4. Interstate and Intergovernmental Relations

96. William Anderson, *Intergovernmental Relations in Review* (Minneapolis: The University of Minnesota Press, 1960).

97. W. Brooke Graves, *American Intergovernmental Relations* (New York: Charles Scribner's Sons, 1964).

98. "Intergovernmental Relations in the United States," entire issue of *The Annals of the American Academy of Political and Social Science* (May 1965).

99. Senator Muskie, "The Challenge of Creative Federalism," *Congressional Record - Senate*, March 25, 1966, pp. 6500-6512.

5. Interstate Compacts

100. Frank P. Grad, "Federal-State Compact: A New Experiment in Cooperative Federalism," *Columbia Law Review*, Vol. 63 (May, 1963) pp. 825-855.

101. James Landis and Felix Frankfurter, "The Compact Clause of the Constitution: A Study in Interstate Adjustments," *Yale Law Review* (May, 1925).

102. Richard H. Leach and Redding S. Sugg, Jr., *The Administration of Interstate Compacts* (Baton Rouge: Louisiana State University Press, 1955).

103. *Proceedings: Conference of Interstate Agencies* (Chicago: Council of State Governments, annual).

104. Vincent Thursby, Interstate Cooperation -- *A Study in the Interstate Compact.*

105. Frederick L. Zimmerman and Mitchell Wendell, *The Interstate Compact Since 1925* (Chicago: Council of State Governments, 1951).

106. Frederick L. Zimmerman and Mitchell Wendell, *The Law and Use of Interstate Compacts* (Chicago: Council of State Governments, 1961).

6. New England As A Region

107. Joseph E. Cannon, "Public Health Services -- Why Not A Regional Approach?", *New Englander*, (October 1964) pp. 12, 13, 40.

108. Saul B. Cohen, "New England's Boundaries - How Realistic Are They?", *New Englander*, (August, 1964) pp. 9, 26, 27.

109. Directive Committee on Regional Planning of Yale University, *The Case For Regional Planning with Special Reference to New England* (New Haven: Yale University Press, 1942).

110. Howard L. Green, "Hinterland Boundaries of New York City and Boston in Southern New England," Economic Geography, Vol. 31, (October 1955).

111. Rudolph Hardy, "Economics: Where Does New England Go From Here?", New Englander (December 1964) pp. 8, 9, 27.

112. George W. Pierson, "The Obstinate Concept of New England: A Study of Denudation," The New England Quarterly, Vol. 28 (March, 1955).

113. Robert A. Shanley, Ed., Intergovernmental Challenges in New England Bureau of Government Research (Amherst, University of Massachusetts, July 1965)

114. Edwin W. Webber, "Regional Cooperation: A Modus Vivendi for New England," State Government, Vol. XXXVIII, No. 3 (summer 1965) pp. 186-190.

115. Edwin W. Webber, "Six of One," New Englander, (September, 1964). pp. 14, 43, 44, 45.

7. The New England Region's Economy

116. John Donald Black, The Rural Economy of New England (Cambridge, Harvard University Press, 1950)

117. Seymour E. Harris, The Economics of New England (Cambridge, Harvard University Press, 1962).

118. Selma J. Mushkin and Robert Harris, Financing Public Welfare: 1970 Projections, (Chicago: Council of State Governments, 1965.)

119. Selma J. Mushkin, Financing Public Hospitals and Health Services: 1970 Projections (Preliminary Draft Chicago: Council of State Governments, 1965)

120. Selma J. Mushkin, Property Taxes: The 1970 Outlook (Chicago: Council of State Governments, 1965.

121. Selma J. Mushkin and Eugene P. McLoone, Public Spending for Higher Education in 1970 (Chicago: Council of State Governments, 1965.)

122. Selma J. Mushkin and Robert Harris, Transportation Outlays of States and Localities: Projections to 1970 (Chicago: Council of State Government, 1965).

123. National Planning Association, Committee of New England, The Economic State of New England (New Haven: Yale University Press, 1954).

124. U. S. Council of Economic Advisors, Committee on the New England Economy, The New England Economy (Washington, D. C.: U. S. Government Printing Office, 1951).

125. John K. Wright, Ed., New England's Prospect: 1933, (New York: American Geographical Society, Special Publication No. 16, 1933).

VI. APPENDIX: PLANNING CONSULTANTS

Note: Roster is composed of firms which have done state, regional, or local planning in New England; or are on lists compiled by state planning agencies as a service to local communities. Listing does not represent either evaluation or approval, and is provided simply as a guide to one kind of planning resource in New England.

Adams, Howard & Oppermann
15 Ash Street
Cambridge, Massachusetts

Aero Service Corporation
210 East Courtland Street
Philadelphia 20, Pennsylvania

Mrs. Henry G. Altman
43 Gibson Street
Cambridge 38, Massachusetts

Atwood & Blackwell
5 Boylston Place
Boston 16, Massachusetts

Theodore S. Bacon, Jr.
30 Dana Place
Amherst, Massachusetts

Herbert L. Bogen
83 Newbury Street
Boston 16, Massachusetts

Brown, Donald & Donald
Spring Lane
Farmington, Connecticut

Ledyard T. Blakeman
55 Wilson Road
Princeton, New Jersey

Brown and Anthony
420 W. 116th Street
New York, New York

Bryan and Panico
1275 Post Road
Fairfield, Connecticut

Candeub, Fleissig & Associates
211 Congress Street
Boston 10, Massachusetts

Robert Charles Associates

Community Planners
100 N. Village Avenue
Rockville Centre, New York

Chapham, Huygens & Tappe
9 Park Street
Boston, Massachusetts 02108

Frederick P. Clark & Associates
29 Locust Avenue
Rye, New York

Conklin, George W.
17 Broadway
New Haven, Connecticut

Corkey and Barrows
302 State Street
New London, Connecticut

Homer K. Dodge
24 Union Avenue
Framingham, Massachusetts

Charles E. Downe
950 Watertown Street
West Newton, Massachusetts

Ebasco Services, Inc.
2 Rector Street
New York, New York

Edwards & Kelcey, Inc.
470 Atlantic Avenue
Boston 10, Massachusetts

Charles M. Evans & Associates
73 Tremont Street
Boston 8, Massachusetts

Economic Development Associates, Inc.
230 Boylston Street
Boston, Massachusetts

Charles W. Eliot
25 Reservoir Street
Cambridge 38, Massachusetts

James M. Friedlander
Box 214
Norwich, Connecticut

Brent B. Friedlander
225 E. 70th Street
New York 21, New York

General Thermodynamics Corp.
150 Ballardvale Street
North Wilmington, Mass.

Gruen, Victor Associates
2 West Thirteenth Street
New York, New York

Goodkind & O'Dea
1190 Dixwell Avenue
Hamden, Connecticut

Hans Klunder Associates
24 South Main Street
Box 665
Hanover, New Hampshire

Howard, Needles, Tammon &
Bergendoff
99 Church Street
New York, New York

Harold M. Lewis
Box 120 A, R.D. 3
Troy, New York

E. H. Lord-Wood Associates
217 Farmington Avenue
Hartford, Connecticut

McCrosky-Reuter
23 E. 26th Street
New York 10, New York

Francis Dodd McHugh
23 E. 26th Street
New York 10, New York

Alfred Mercado
305 West 28th Street
New York 1, New York

Metcalf & Eddy
Statler Building
Boston, Massachusetts

Northeast Planning Associates
148 College Street
Burlington, Vermont

Pederson & Tilney Architects
8 Newbury Street
Boston, Massachusetts

Planning Services Group
18 Eliot Street
Cambridge 38, Massachusetts

Planning Engineering & Development
32 Algonquin Road
Canton, Massachusetts

James P. Prucell, Associates
3315 Berlin Turnpike
Newington, Connecticut

Raymond & May Associates
11 Holland Avenue
White Plains, New York

M. E. H. Rotival & Associates
120 Wall Street
New York, New York

Sargent-Webster-Crenshaw & Folley

Shurcliff & Merrill
45 Bromfield Street
Boston, Massachusetts

Wilbur Smith and Associates
495 Orange Street
New Haven, Connecticut

S. Spielvogel and Associates
1044 Chapel Street
New Haven, Connecticut

Stelling-Lord Wood & Van Suetendael

James W. Sewall Company
Old Town
Maine

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Marshfield Hills
Massachusetts

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Summary of Task Force Recommendations

Summary of Task Force Recommendations

The following list represents an attempt to extract from Task Force Reports A through J* any specific recommendations of the respective task force members. Several qualifying remarks should be made. First these recommendations should be viewed within the scope of the particular functional area in which they were made. This scope is, by definition, more limited than that of the New England economy as a whole, and it is possible therefore, that a certain recommendation which appears reasonable and proper within a particular functional area may lose its attractiveness when viewed in the enlarged context of the New England region.

Second, these recommendations are those of the individual task force members. In listing them, no attempt has been made to examine them critically, nor has there been an attempt to assign priorities to the recommendations.

Finally, it should be apparent that this list is not exhaustive. The recommendations summarized here are those that are suggested explicitly by the task force members. No attempt has been made to summarize the numerous points and issues that have policy implications.

I. Gaps in Our Knowledge and Suggested Areas of Study.

Population, Labor Force, Employment, Income, and Education. Everett J. Burtt and most of the others feel that a major problem for research has been, and will continue to be, forecasting population accurately. They suggest, therefore, that additional research in this area would be appropriate.

Location and Structure of Manufacturing. Roger C. Van Tassel.

1. Van Tassel feels that considerable agreement exists on the causes of economic growth and industrial structure in New England, but there is much less agreement on the predictions of future growth and structure.

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* It should be noted that the task force recommendations of Avery M. Colt on State Organization and Planning Development are not included in this summary due to the specialized nature of his findings. (See p. K-4). In his task force report on Transportation, Martin L. Lindahl was concerned primarily with the recommendations of the reports he reviewed. For this reason, no reference to his task force report will be found in this summary.

An appropriate research project might be, therefore, an attempt to resolve the differences between the 1959 projections of the Federal Reserve Bank of Boston and those of A. D. Little (1964).

2. The structure of the New England economy has changed and Van Tassel suggests that an updating of the 1951 study by the Council of Economic Advisory (The New England Economy, Washington, D. C., 1951) might be the type of endeavor appropriate for the Regional Action Planning Commission.

Domestic and Foreign Trade. Meredith O. Clement.

1. He feels that there are very few significant empirical studies of the trade position and structure of the New England economy.

   Furthermore, a major limitation of these few pieces is that no one of them gives a comprehensive picture of the adjustment of the commodity composition and the internal and external geographic pattern of the New England's extra-regional trade over a sufficiently long period of time. Clement therefore sees a need for a "Quantitative-historical retrospective study" of the influence of foreign and interregional trade on the New England economy.

2. Clement suggests that a profitable research effort could be conducted for the post-World War II period following the methods Miss Hartland used in her 1929-39 study.

3. Clement feels that a significant gap in the research on the impact of extraregional trade on the New England economy has been the quantitative studies of the effect on and responses of individual industries or even producing sectors. Only the textile industry has been singled out for such an impact study.

Roads. Paul Weiner, Paul N. Taylor, and Walter McKain.

1. Since practically all the impact studies have been intrastate in scope, they see a need for an impact study that would include more than one state. They also suggest that a model be developed that would be predictive rather than a means of measuring impact after the fact.

2. They feel that the New England states (excepting Maine) have done little work in the area of financing and cost studies, and they suggest therefore that a comparative financing study would be useful.

3. They note a complete lack of studies on highway beautification in New England, and they recommend a regional study in this area.

Power and Fuel. William R. Hughes.

1. There are major studies on cost reduction for power, but a significant gap exists in the literature with respect to comparable studies for non-power fuel.

   Also fuel studies closely related to New England are scarce outside the fuels-for-electric generation field.

2. There is need for research into the possible impact of rate structures in affecting the efficiency and total cost of the overall pattern of energy use in the region.

3. Hughes sees a need to study the heavy demands of power on the use of land, water, shoreline sites and other resources and the side effects of power network expansion on the appearance of the environment and on the use of especially valuable pieces of land in an increasingly congested region, e.g., questions involving transmission right of way and choice of thermal sites.

4. Future work on the role of power in the regional competitive position should, in addition to keeping abreast of possibilities for cost reduction, focus on getting direct specific information on critical industries and locations. Such work is perhaps best incorporated in studies oriented toward overall prospects for such industries rather than toward power per se.

5. Hughes sees a need to study the opportunities for recreational development and other non-power benefits with respect to hydroelectric sites prior to the expiration of FPC licenses in 1970.

Water, Non-Fuel Minerals, Agriculture, and Forestry. Robert Forste and Robert Christensen.

1. Water

   a. Forste and Christensen see a lack of specific and aggregate coefficients for supply and demand for water, and they therefore suggest that research capable of yielding these coefficients be conducted.

   b. They state that future research on water resources should involve combined economic-legal analyses. Also, they urge that integrated analyses be conducted which consider the economic effects of physical changes in water resource development.

   c. They urge study of the economic effests and feasibility aspects of changing technical capacities of munucipal plants and other water withdrawal systems.

    d. Economic evaluation and planning for flood control projects must take into account the effects on the natural resources of the specific area including land use, agriculture, and forestry.

2. Agriculture

   Not only is more research needed regarding the economics of interregional competition in agriculture but this research must be on a continuing basis. The appropriate research technique for such studies is spatial equilibrium analysis, according to Forste and Christensen.

3. Forestry

   a. They urge study of the issue of forest land taxation especially with respect to small forest land holdings.

   b. Few of the studies which were reviewed by Forste and Christensen offer any detailed analysis of production costs among regions nor have competitive costs among regions received much attention in a market analysis.

Ocean Resources. Niels Rorholm.

1. For the fishing industry, Rorholm suggests two kinds of research:

   a. economic-biological-legal research on the proper management practices for a common property resource (fish).

   b. point economic engineering research tackling problems in catching, handling and distribution.

2. For offshore sand and gravel resources, he urges the investigation of the mining of these in connection with clearing or constructing boat harbors.

Recreation, Tourism, and Beautification. Richard Pfister.

1. From his review of the studies, Pfister concludes that for units as large as states or regions, tourism constitutes a relatively small part of the economic base. Pfister notes that some disagreement exists concerning this issue and he feels that this disagreement is closely related to problems of measurement of the economic significance of the tourist trade in New England. To obtain a more accurate estimate therefore, Pfister suggests that instead of the usual index of economic significance, i. e.,

gross sales in terms of tourist expenditures, it would be better to use some combination of multiplier analysis, value-added, and employment.

2. From his observation that the major portion of the studies do not indicate priorities in their lists of issues and problems, Pfister feels that ideally there should be benefit-cost analyses of all programs competing for public money.

Taxation, Public Finance and Investment. Arnold Raphaelson.

He sees a need for a comprehensive regional study of public finance. There are notable gaps in the knowledge of the state and local tax structures and their real impact upon industrial development although some of these gaps are being filled by current studies. The lack of information on taxation and state and local expenditures may inhibit the establishment of new regional programs and the best use of existing programs of federal aid. Such a comprehensive study is necessary to assess the nature of state and local participation that could be expected in regional development efforts.

II. Suggested Action

Power and Fuel. William R. Hughes

Power and fuel cost are not sufficiently strategic to regional development to be a primary aim of major public programs. Some reductions in these costs, worthwhile per se and for possible competitive gains in particular cases, can be achieved without massive efforts that may compete with more effective development programs. The use of public project proposals as stimulation appears to be the least costly and most effective form of public policy action in reducing power and fuel costs in New England.

Taxation, Public Finance, and Investment. Arnold Raphaelson.

The electric power development proposals of the various studies call for public or private integration of power planning to meet regional needs.

Recreation, Tourism and Beautification. Richard Pfister.

Water, Non-Fuel Minerals, Agriculture. Robert Forste and Robert Christensen.

1. Many federal, state, and local governmental agencies as well as some private organizations are involved in the management of natural resources in New England. They see a need for formal arrangements to coordinate programs of all agencies involved in the management of natural resources.

2. The coordination must involve future plans as well. Pfister suggests that many scenic sites should be acquired now in anticipation of making the "best" use of these areas.

3. Forste and Christensen suggest that for coordination of research in watershed planning, the University of Connecticut's Water Resources Center be designated as the New England center for investigating water law. (The reasoning is that U. Conn. is the only land grant college in New England with a law school.)

Roads. Paul Weiner, Paul N. Taylor and Walter McKain.

1. They suggest that lack of coordination with respect to highway research by various agencies and states is a significant source of waste, and therefore, efforts directed at eliminating this inefficiency will benefit the region as a whole.

2. Closely related to the problem of unnecessary duplication of effort and data is their suggestion for a central data-gathering agency for New England.

Ocean Resources. Niels Rorholm.

Opportunities for increasing the harvest of fisheries off the New England coast lie in four areas:

1. The removal of shallow water fisheries from their status as a common property resource thus encouraging publicly controlled private fish production.

2. The development of equipment to enable industrial fish to be sold as food fish.

3. Legislation that would grant to a country exclusive fishing rights on its continental shelf.

4. The development of fish protein concentrate.

Appendix

Procedures Used in Individual Task Force Reports

Appendix

Procedures Used in Individual Task Force Reports

The following is a summary of the major steps taken by the various task force members in preparing their respective reports.

I. Everett J. Burtt, Task Force Report A.

A. Mr. Burtt relied initially upon a bibliography which he had accumulated over the years in the course of his own research and teaching in the field. For this study he supplemented his own bibliography with an examination of various publications among which were:

1. *Quarterly Inventory of Economic Research on New England*, published by the Federal Reserve Bank of Boston.
2. *American Economic Review*.
3. *Journal of Political Economy*.
4. *Monthly Labor Review*.

B. Those articles and books which Mr. Burtt chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

II. Roger C. Van Tassel, Task Force Report B.

A. In order to begin his list of publications for review Mr. Van Tassel utilized the library facilities and resources of:

1. Clark University, Worcester, Massachusetts.
2. Federal Reserve Bank of Boston.

He also used:

3. *Journal of Economic Abstracts*.
4. *Union Catalog of Doctoral Dissertations*.

B. Those publications which Mr. Van Tassel chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

III. Meredith O. Clement, Task Force Report C.

A. His compilation of items to be examined started with:

1. Index of Economic Journals, compiled by the American Economic Association.

2. American Economic Review, Annual September listing of doctoral dissertations.

He supplemented the material from these sources with reference sources he acquired from consultations with:

3. Miss Eleanor DiGiannantonio, librarian of the Federal Reserve Bank of Boston.
4. Mr. Robert Eisenmenger, Research Director of the Federal Reserve Bank of Boston.

Mr. Clement was not able to find a "comprehensive, or even partially adequate, bibliography on New England's foreign and domestic trade patterns."

B. Those articles and books which Mr. Clement chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission. Guidelines for selection of these publications were provided also by the day-long panel discussion on the nature of the Regional Action Planning Commission at the Federal Reserve Bank of Boston on February 16, 1966.

IV. Martin L. Lindahl, Task Force Report D.

A. The books, reports, and documents, that Mr. Lindahl reviewed in his report on research in public transportation were known to him prior to his undertaking the task of reviewing them. He has possession of most of the works. He made no attempt to include reports and opinions by state regulatory agencies, the Interstate Commerce Commission, or the Civil Aeronautics Board.

For recent research in the field of transportation, he found especially valuable Transportation Research, prepared by the Research Staff of the Transportation Association of America, Washington, D. C.

Fourth Edition, December 1964.

B. Those articles and books which Mr. Lindahl chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

V. Paul Weiner, Paul N. Taylor, Walter McKain, Task Force Report E.

A. The task force members consulted with key personnel in:

1. U. S. Bureau of Public Roads, Washington, D. C.
2. Field Office U. S. Bureau of Public Roads, Hartford, Connecticut.
3. State of Connecticut Highway Department, Hartford, Connecticut.

They also used the library facilities at:

4. Harvard University, Cambridge, Massachusetts.
5. University of Connecticut, Storrs, Connecticut.
6. Institute of Urban Research, University of Connecticut, Storrs, Connecticut.
7. U. S. Bureau of Public Roads, Washington, D. C.
8. Field Office, U. S. Bureau of Public Roads, Hartford, Connecticut.

9. State of Connecticut Highway Department, Hartford, Connecticut.
10. Highway Research Board, Washington, D. C.

B. Those publications which the three task force members chose to examine critically in Section 1 of their reports were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

VI. William R. Hughes, Task Force Report F.

A. Mr. Hughes had made a comprehensive search of the library resources of Harvard University in 1960. In addition to this compilation, Mr. Hughes utilized:

1. Index of Economic Journals, compiled by the American Economic Association.
2. American Economic Review, Annual September listing of doctoral dissertations.
3. Journal of Economic Abstracts.
4. Quarterly Inventory of Economic Research on New England, published by the Federal Reserve Bank of Boston.

Also, Mr. Hughes consulted with:

5. Mr. Robert Blum, Consulting Economist, Washington, D. C. (Mr. Blum is an energy expert formerly employed by The Paley Commission, AEC and FPC, and was helpful with respect to the nuclear power literature.)
6. William Shipman, Associate Professor Economics, Bowdoin College.
7. Benjamin Smith, Economist, F.P.C. Mr. Smith searched F.P.C. files and library for relevant fuel sources.
8. John Wilkinson, Federal Reserve Bank of Boston.
9. Roy Poulsen, Associate Professor of Economics, University of Rhode Island.
10. George Gols, Economist, Arthur D. Little, Inc.
11. R. Forte, Electric Council of New England.

B. Those publications which Mr. Hughes chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

VII. Robert H. Forste and Robert L. Christensen, Task Force Report G.

A. Mr. Forste and Mr. Christensen utilized the resources and library facilities of several agencies and universities in New England.

1. University of New Hampshire, the main library and the library of the Resource Economics Department.
2. Littauer Center of Public Administration, Harvard University.
3. New Hampshire State Planning and Development Department.

The task force members also used:

4. Quarterly Inventory of Economic Research on New England, published by the Federal Reserve Bank of Boston.

B. Those publications which Mr. Forste and Mr. Christensen chose to examine critically in Section 1 of their report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

VIII. Niels Rorholm, Task Force Report H.

A. In order to compile a list of publications for review Mr. Rorholm utilized:

1. Library facilities of the University of Rhode Island.
2. Rhode Island Marine Bibliography and Atlas, Part I Bibliography (Preliminary), Dale C. Krause and John McN. Sieburth, University of Rhode Island, Graduate School of Oceanography, January 1966.
3. Quarterly Inventory of Economic Research on New England, Federal Reserve Bank of Boston 1947-1966.
4. Conversations with colleagues in Marine Economics and Graduate School of Oceanography.
5. Correspondence with State Agencies in Connecticut, Rhode Island, Massachusetts, New Hampshire, and Maine.

B. Those publications which Mr. Rorholm chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

Mr. Rorholm deemed it necessary, however, to take account of the peculiarities of the sources and to give a more comprehensive picture of the problems of the industry and of its potential.

IX. Richard L. Pfister, Task Force Report I.

A. Mr. Pfister started his bibliographic compilation with:

1. A Bibliography of Surveys and Statistical Reports on Tourism and the Visitor Industry of the United States. Bureau of Business Research, University of Colorado, 1960.

Mr. Pfister also communicated with:

2. Development commissions or departments planning agencies, natural resource departments, and state park commissions of the six New England states.

3. Mr. Paul Hendrick, Systems Analysis and Research Corporation.
4. Mr. Mark Abelson, Northeast Regional Coordinator, U. S. Department of the Interior.

B. Those publications which Mr. Pfister chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

X. Arnold H. Raphaelson, Task Force Report J.

A. For the initial selection of materials for his bibliography, Mr. Raphaelson consulted with:

1. Miss Eleanor Di Giannantonio, Librarian of the Federal Reserve Bank of Boston.

He also used the library facilities of:

2. Kirstein Business Branch of the Boston Public Library.
3. University of Maine.

In addition to these sources, Mr. Raphaelson interviewed:

4. Mr. James Wightman, Worcester, Polytechnic Institute.
5. Dr. Dorothy Goodwin, University of Connectucut.

B. Those publications which Mr. Raphaelson chose to examine critically in Section 1 of his report were selected on the basis of their current relevance to the purposes and functions of the Regional Action Planning Commission.

XI. Avery M. Colt, Task Force Report K.

A complete description of the procedure with which Mr. Colt prepared his report is given on page K-3 in Task Force Report K.

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